

## Appendix M: Conceptual Mitigation



## Appendix M:

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# Conceptual Mitigation





- M-1 Denver Water's Conceptual Mitigation Plan for the Moffat Collection System Project
- M-2 Operations of the Environmental Pool (for Mitigation Purposes) at Gross Reservoir as Evaluated by the Corps
- M-3 Moffat Collection System Project, Fish and Wildlife Mitigation Plan, Prepared for the Colorado Wildlife Commission, by Denver Water, June 9, 2011
- M-4 Moffat Collection System Project, Fish and Wildlife Enhancement Plan, Prepared for the Colorado Wildlife Commission, by Denver Water in Partnership with the Municipal Subdistrict, Northern Colorado Water Conservancy District, June 9, 2011
- M-5 Colorado River Cooperative Agreement, May 15, 2012, Proposed Agreement



## **Appendix M**

### **Conceptual Mitigation**

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**Appendix M-1**  
**Denver Water's Conceptual Mitigation Plan for the**  
**Moffat Collection System Project**







**Moffat Collection System Project**  
**Denver Water's Conceptual Mitigation Plan**

**Prepared by Denver Water**

**February 24, 2014**

**1.0 INTRODUCTION**

- 1.1 Moffat Project Overview
- 1.2 Purpose of this Mitigation Plan
- 1.3 Related Documents and Agreements
- 1.4 Elements of this Mitigation Plan
- 1.5 Regulatory Framework
- 1.6 Concurrent and Related Activities
- 1.7 Avoidance and Minimization

**2.0 PROJECT EFFECTS AND PROPOSED MITIGATION MEASURES**

- 2.1 Gross Reservoir and South Boulder Creek
- 2.2 North Fork South Platte and South Platte Rivers
- 2.3 Fraser and Williams Fork Rivers
- 2.4 Blue River
- 2.5 Colorado River

**3.0 ADDITIONAL ENVIRONMENTAL PROTECTIONS IN GRAND COUNTY**

**4.0 VOLUNTARY ENHANCEMENTS FOR AQUATIC RESOURCES**

**5.0 SUMMARY OF COMMITMENTS**

**List of Tables**

- Table 1 Summary of Gross Reservoir and South Boulder Creek Impacts and Proposed Mitigation
- Table 2 Summary of Project Effects on Stream Flows - South Boulder Creek
- Table 3 Summary of North Fork South Platte and South Platte Rivers Impacts and Proposed Mitigation
- Table 4 Summary of Project Effects on Stream Flows - North Fork South Platte and South Platte Rivers
- Table 5 Summary of Fraser and Williams Fork River Basins Impacts and Proposed Mitigation
- Table 6 Summary of Project Effects on Stream Flows - Fraser and Williams Fork Rivers
- Table 7 Summary of Blue River Impacts and Proposed Mitigation
- Table 8 Summary of Project Effects on Stream Flows - Blue River
- Table 9 Summary of Upper Colorado River Impacts and Proposed Mitigation
- Table 10 Summary of Project Effects on Stream Flows - Upper Colorado River
- Table 11 Summary of Moffat Project Impacts and Proposed Mitigation



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### **List of Acronyms**

°C	degrees Celsius
°F	degrees Fahrenheit
%	percent
ACHP	Advisory Council on Historic Preservation
AF	acre-feet
AF/yr	acre-feet per year
BA	Biological Assessment
BMP	Best Management Practice
BO	Biological Opinion
CCR	Colorado Code of Regulations
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CFR	Code of Federal Regulations
cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
CPW	Colorado Parks and Wildlife
CRCA	Colorado River Cooperative Agreement
CWA	Clean Water Act
CWC	Colorado Wildlife Commission
CWCB	Colorado Water Conservation Board
dBA	A-weighted decibel scale
Denver Water or DW	Denver Board of Water Commissioners
DO	dissolved oxygen
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
GCSMP	Grand County Stream Management Plan
IGA	Intergovernmental Agreement
LBD	Learning by Doing
MBTA	Migratory Bird Treaty Act
MeHg	methylmercury
MECP	Grand County Mitigation and Enhancement Coordination Plan
Middle Park	Middle Park Water Conservancy District
Moffat Project or Project	Moffat Collection System Project
MWAT	Maximum Weekly Average Temperature
NEPA	National Environmental Policy Act of 1969, as amended
NHPA	National Historic Preservation Act



PA	Programmatic Agreement
Preble's	Preble's meadow jumping mouse
Reclamation	U.S. Bureau of Reclamation
River District	Colorado River Water Conservation District
RMP	Recreation Management Plan
ROD	Record of Decision
SHPO	State Historic Preservation Officer
SPWRAP	South Platte Water Related Activities Program, Inc.
Subdistrict	Municipal Subdistrict, Northern Colorado Water Conservancy District
U.S.	United States
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WGFP	Windy Gap Firing Project
WQCC	Water Quality Control Commission
WQCD	Water Quality Control Division
WTP	Water Treatment Plant

## 1.0 INTRODUCTION

### 1.1 Moffat Project Overview

The Moffat Collection System Project (Moffat Project or Project) is a water supply project designed to provide 18,000 acre-feet per year (AF/yr) of new water supply to meet the future demands of the Denver Board of Water Commissioners (Denver Water or DW) and its customers. The proposed Moffat Project involves raising the existing dam at Gross Reservoir to increase total storage capacity and using existing water collection infrastructure to fill the enlarged reservoir.

The Project would enlarge the existing 41,811-acre foot (AF) Gross Reservoir by 72,000 AF to a total storage capacity of 113,811 AF. The surface area of the reservoir would be expanded from approximately 418 to 818 acres. Using existing collection infrastructure, water from the Fraser River, Williams Fork River, and South Boulder Creek would be diverted and delivered during average to wet years via the Moffat Tunnel and South Boulder Creek to Gross Reservoir. Existing distribution facilities, including the South Boulder Diversion Canal and Conduits 16 and 22, would be used to deliver water from the enlarged Gross Reservoir to the Moffat Water Treatment Plant (WTP) and to raw water customers.

In addition, for environmental mitigation purposes, Denver Water is proposing to raise the dam an additional 6 feet, for a total dam height of 471 feet, in order to store an additional 5,000 AF of water in Gross Reservoir for use in environmental flow releases. This additional storage, which is termed the “Environmental Pool,” would further increase total storage in the reservoir to 118,811 AF, and would increase the surface area to 842 acres. Storage of the Environmental Pool would increase shoreline inundation by approximately 24 acres. The additional storage would be filled with water provided by the cities of Boulder and Lafayette.

In 2003, Denver Water notified the U.S. Army Corps of Engineers (Corps) of its intent to apply for a permit, pursuant to Section 404 of the Clean Water Act (CWA), to place fill in jurisdictional waters of the U.S. (including wetlands) for a water supply project. The Corps determined that an Environmental Impact Statement (EIS) was needed to evaluate the direct and indirect effects of the Project alternatives on the environment, pursuant to the National Environmental Policy Act of 1969, as amended (NEPA). More than 300 Project components were considered and five were evaluated in detail in a Draft and Final EIS. The Draft EIS was published and released for public and agency review in October 2009.

Gross Reservoir is located in Boulder County, Colorado on the East Slope of the Front Range (East Slope) in the South Boulder Creek drainage. Water collection infrastructure is located in Grand County, on the West Slope within the Fraser, Williams Fork, and Colorado River drainages (West Slope). West Slope water will continue to be conveyed from the collection system to the East Slope storage (primarily Gross Reservoir) through the existing Moffat Tunnel and into South Boulder Creek. Some of the water transported from the West Slope and native South Boulder Creek water will be stored in Gross Reservoir until needed by Denver Water. Since most of the native water in South Boulder Creek is released to downstream senior water rights, the majority of water stored in Gross Reservoir is from the West Slope. When Denver Water needs additional water supplies at its WTP or for raw water customers, water is released from Gross Reservoir to South Boulder Creek and captured at the South Boulder Diversion Dam in Eldorado Canyon. At this location water is transferred into the South Boulder Canal and transported to Ralston Reservoir. Denver Water typically fills Gross Reservoir with spring run-off and then cuts back on the amount of water transported through the Moffat Tunnel while Gross Reservoir is full. Then,

when summer demand increases, Denver Water increases the amount diverted through the Moffat Tunnel in an effort to keep Gross Reservoir full.

## 1.2 Purpose of this Mitigation Plan

The purpose of this Mitigation Plan is to document Denver Water's proposed measures to mitigate for the various unavoidable adverse environmental effects identified in the Final EIS associated with construction and operation of the Moffat Project. This Plan also provides Additional Environmental Protections for use in Grand County through the Learning By Doing Cooperative Effort (LBD) as part of a broader program to address environmental issues. Lastly, the Plan contains a summary of the additional enhancement efforts Denver Water has committed to accomplish in related agreements. Additional detail about LBD and the Additional Environmental Protections can be found in Sections 3.0 and 4.0 of this Plan and in the Grand County Mitigation and Enhancement Coordination Plan (MECP) developed through a cooperative effort by Grand County and Denver Water, and endorsed by Trout Unlimited.

## 1.3 Related Documents and Agreements

This Mitigation Plan includes the Corps' mitigation recommendations and Denver Water's commitments and additional enhancement efforts found in the following documents:

### Mitigation-related Documents

- *Moffat Project Final Environmental Impact Statement*, U.S. Army Corps of Engineers (2014) – Detailed evaluation of project alternatives, environmental effects, and recommended mitigation measures.
- *Moffat Collection System Project Fish and Wildlife Mitigation Plan*, Denver Water, prepared for the Colorado Wildlife Commission (CWC) (2011) – Constitutes the official State of Colorado position with regard to mitigation of impacts from the Project on fish and wildlife resources.
- *Proposed Mitigation Plan*, Denver Water (2009) – Describes conceptual mitigation measures for review and comment in the Draft EIS.
- *Intergovernmental Agreement (IGA) Between the City and County of Denver, the City of Boulder, and the City of Lafayette for an Environmental Pool in Gross Reservoir* (2010) – Creates a 5,000-AF permanent, year-round pool for storage of water that can be released to augment stream flows in South Boulder Creek.

### Enhancement-related Documents

- *Moffat Collection System Project Fish and Wildlife Enhancement Plan*, Denver Water and the CWC (2011) – Description of additional measures to enhance fish and wildlife resources beyond mitigation requirements.
- *Colorado River Cooperative Agreement (CRCA)*, multiple entities (2013) – Multiparty agreement by various entities to benefit water supply, water quality, environmental resources, and recreation.
- *Learning by Doing (LBD) Cooperative Effort*, Denver Water, Grand County, Colorado River Water Conservation District (River District), and Middle Park Water Conservancy District (Middle Park) (2012) – IGA to cooperatively maintain, restore, and enhance the aquatic environment in the Fraser and upper Colorado river basins.



- *IGA Between Colorado Department of Transportation (CDOT), Grand County, Town of Winter Park and Denver Water for the Fraser Sediment Pond (2011) – IGA to operate and maintain the Fraser Sediment Pond to reduce sediment load in the Fraser River.*

## 1.4 Elements of this Mitigation Plan

This Mitigation Plan includes the following sections:

- The **Introduction** provides a background on the Project and regulatory framework.
- The **Proposed Mitigation Measures** describe the Project-related impacts and Denver Water's commitments to mitigate those impacts. These commitments will be incorporated as Section 404 Permit conditions for the Moffat Project, if issued.
- The **Additional Environmental Protections** describe commitments by Denver Water, as part of a broader cooperative effort in Grand County, to protect the environment in the County beyond mitigating impacts identified in the Final EIS potentially caused by the Project. These commitments will be incorporated as Section 404 Permit conditions for the Moffat Project, if issued.
- The **Voluntary Enhancements** describe additional non-regulatory commitments made and enforceable under separate agreements that Denver Water will undertake to improve environmental and aquatic habitat conditions in Grand County, beyond those measures that are necessary to mitigate effects of the Moffat Project.
- The **Summary of Commitments** provides an overall summary of all regulatory and non-regulatory commitments for mitigating, protecting and enhancing Gross Reservoir and each affected stream area.

## 1.5 Regulatory Framework

### 1.5.1 Clean Water Act Section 404/National Environmental Policy Act

Section 404 of the CWA regulates the discharge of dredged or fill material into waters of the U.S., including jurisdictional wetlands. Section 404(b)(1) Guidelines of the CWA provides guidance for evaluating activities regulated under Section 404 of the CWA. Projects subject to the individual permitting process by the Corps under the CWA must comply with the Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR], Part 230) for discharge of dredged and fill material into waters of the U.S.

The issuance of a Section 404 Permit by the Corps is a federal action that triggers an environmental analysis under NEPA. Under NEPA, the Corps must evaluate direct and indirect effects of a range of reasonable alternatives to the Proposed Action. A Draft EIS was released to the public in 2009 and a Final EIS will be released in 2014.

### 1.5.2 Compensatory Mitigation Rule

On March 31, 2008, the U.S. Environmental Protection Agency (EPA) and the Corps issued revised regulations governing compensatory mitigation for authorized impacts on wetlands, streams, and other waters of the U.S. under Section 404 of the CWA. These regulations are designed to improve the effectiveness of compensatory mitigation to replace lost aquatic resource functions and areas, expand public participation in compensatory mitigation decision making, and increase the efficiency and predictability of the mitigation project review process. The regulations establish performance standards and criteria for the use of permittee-responsible compensatory mitigation, mitigation banks, and in-lieu fee programs.

Compensatory mitigation involves actions taken to offset unavoidable adverse impacts on wetlands, streams, and other aquatic resources authorized by Section 404 Permits and other Corps permits. The fundamental objective is to offset environmental losses resulting from unavoidable impacts on waters of the U.S. The Corps' district engineer must determine the compensatory mitigation required in a Corps permit based on what is practicable and capable of compensating for the aquatic resource functions that will be lost as a result of the permitted activity. The district engineer considers what would be environmentally preferable mitigation by assessing the likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and its significance within the watershed, and the costs of the compensatory mitigation project.

### **1.5.3 Endangered Species Act Requirements**

The Corps initiated consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7(a) of the Endangered Species Act (ESA) regarding the effects of the Moffat Project on federally-listed species and/or designated critical habitat. The USFWS issued a Biological Opinion (BO) on July 31, 2009. However, in 2010, based on a review of the Draft EIS, the USFWS recommended that the Corps reinstate Section 7 consultation for the Moffat Project and submit a revised Biological Assessment (BA) to address (1) a comprehensive assessment of Denver Water's past, existing and future diversions and depletions to the Colorado River and Platte river basins, (2) a population of Preble's meadow jumping mouse (Preble's) found along the North Fork South Platte River, and (3) the greenback lineage populations of cutthroat trout within the Project area on the West Slope. The Corps submitted a revised BA on the first two items on August 14, 2013 and the USFWS issued a final BO on December 6, 2013, replacing the 2009 BO. The USFWS determined that proposed depletions to the Colorado River and Platte River would be covered by Denver Water's existing Recovery Agreement on the Colorado River and continued participation in the South Platte Water-Related Activities Program, Inc. (SPWRAP), respectively. In addition, the USFWS concurred with the Corps' determination of "not likely to adversely affect" for Preble's in Colorado. The Corps intends to submit a separate BA on greenback cutthroat trout in the second quarter of 2014. The USFWS intends to issue a BO prior to the Corps issuing its Record of Decision (ROD) for the Moffat Project.

### **1.5.4 National Historic Preservation Act Requirements**

Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA) requires federal agencies to consider any impacts a project with federal involvement has on significant cultural resources. The Advisory Council on Historic Preservation (ACHP) procedures (36 CFR 800) were used to determine the Project's impact on significant cultural resources and how to mitigate any adverse impacts. In compliance with 36 CFR 800 and 33 CFR Part 325 Appendix (including the April 25, 2005 Corps' Interim Guidance), the Corps, Denver Water, Colorado State Historic Preservation Officer (SHPO), ACHP, U.S. Forest Service (USFS), Boulder County Historic Preservation Advisory Board, and various American Indian Tribes have prepared a draft Programmatic Agreement (PA) for cultural resources that stipulates how significant cultural resources are to be treated, including site avoidance or protection measures and data recovery. The Federal Energy Regulatory Commission (FERC) also has Section 106 compliance responsibilities for impacts to historic properties within the Project boundary of the licensed hydroelectric facility. However, FERC chose not to be a signatory to the PA and prefers that Denver Water demonstrates compliance with Section 106 of the NHPA in its license amendment application using the cultural resources provision (Article 415) in the Project license. The PA will serve as the official compliance document for Section 106 of the NHPA and will be referenced in the ROD for the Moffat Project, if permitted. The PA also identifies the actions that would need to be taken by Denver Water in the event that

inadvertent discoveries of cultural resources or human remains are made during construction or operation of the Project. The Corps anticipates finalizing the PA prior to issuing its ROD.

### **1.5.5 Federal Energy Regulatory Commission Requirements**

Because Gross Reservoir is a FERC-licensed hydroelectric facility, Denver Water will apply to amend its FERC hydropower license for Gross Reservoir. A Draft FERC Hydropower License Amendment Application was submitted by Denver Water to stakeholders and FERC in October 2009 for public comment. A Final FERC Hydropower License Amendment Application will be submitted to FERC following the Corps' release of the Final EIS. In the amended license, FERC may impose license conditions for environmental protection within the Gross Reservoir project area. Additionally, license conditions may be imposed by the USFS for the protection of USFS lands under Section 4e of the Federal Power Act. Following is a list of FERC license articles and Section 4e conditions that provide ongoing environmental protections which Denver Water currently complies with under its existing FERC license:

- 401: Erosion Control
- 402: Dissolved Oxygen (DO) and Water Temperature Monitoring of South Boulder Creek below Hydroelectric Facility
- 403/404: Ramping Rate Compliance
- 405: Rehabilitation and Restoration Plan (USFS Condition 104)
- 406: Weed Management Plan (USFS Conditions 107 and 108)
- 407: Forest Management Plan
- 410: Plan to Protect Rare and Sensitive Species in the Project Boundary
- 411: Participation in the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin
- 412/413: Participation in the Platte River Endangered Species Recovery Implementation Program
- 414: Visual Resource Protection Plan (USFS Condition 105)
- 415: Archaeological or Historic Sites
- 416/417: Recreation Management Plan (USFS Condition 106)
- 110: Channel Instability and Bank Erosion (USFS Condition 110)

Denver Water will amend these articles and conditions as needed as part of the FERC license amendment process.

### **1.5.6 State of Colorado Requirements**

**Fish and Wildlife Mitigation.** The State of Colorado requires Colorado Parks and Wildlife (CPW) and the Colorado Water Conservation Board (CWCB) to review and provide input on mitigation for fish and wildlife impacts resulting from a federally approved water project (Colorado Revised Statutes 37-60-122.2). The rules at Section 1604B instruct the CWC to ensure that "the mitigation plan is economically reasonable and reflects a balance between protecting the fish and wildlife resources and the need to develop the State's water resources." In 2011, a Fish and Wildlife Mitigation Plan was prepared by Denver Water, which was adopted by the CWC and CWCB. Mitigation measures included in the Fish and Wildlife Mitigation Plan were incorporated into the Final EIS and this Mitigation Plan.



**Section 401 Water Quality Certification.** The Colorado Water Quality Control Division (WQCD) reviews and issues Water Quality Certifications under Section 401 of the federal CWA and Colorado 401 Certification Regulation (Water Quality Control Commission [WQCC] Regulation #82: 5 Colorado Code of Regulations [CCR] 1002-82). Certification is required for any federal license or permit that is issued to construct or operate a facility that may result in any discharge into navigable waters of the U.S. and that such activity will not violate state water quality standards or degrade water quality. The Moffat Project requires Section 401 certification for both the Section 404 Permit and FERC license amendment. Conditions of the Section 401 certification will include Best Management Practices (BMPs) and other conditions to protect water quality. Denver Water intends to submit its application to the WQCD in the second quarter of 2014.

## **1.6 Concurrent and Related Activities**

### **1.6.1 Windy Gap Firming Project**

The Windy Gap Firming Project (WGFP) is a proposed water supply project that would provide more reliable water deliveries to Front Range and West Slope communities and industries. The proposed WGFP would add water storage and related facilities to the existing Windy Gap operations capable of delivering a firm annual yield of about 30,000 AF to project participants. The proposed action is the construction of Chimney Hollow Reservoir to store WGFP water. The Municipal Subdistrict, Northern Colorado Water Conservancy District (Subdistrict), acting by and through the WGFP Water Activity Enterprise, is seeking to construct the project on behalf of the 13 WGFP participants. Project participants include the City and County of Broomfield; the towns of Erie and Superior; the cities of Evans, Fort Lupton, Greeley, Lafayette, Longmont, Louisville, and Loveland; Little Thompson Water District; Central Weld County Water District; and the Platte River Power Authority. The WGFP Draft EIS was completed by the U.S. Bureau of Reclamation (Reclamation) in 2008, and the Final EIS was completed in 2011. Reclamation will likely issue a ROD in 2014.

The Moffat Project would increase diversions from the Fraser River Basin upstream of the Windy Gap diversion site on the Colorado River and would affect the availability of water for the WGFP. Combined diversions for the WGFP and Moffat Project would result in changes to flows in the Colorado River below Windy Gap dam. Both EISs evaluated cumulative effects of the two projects being operational. Denver Water and the Subdistrict cooperated with each other and with the Colorado Department of Natural Resources and CPW in concurrent development of Fish and Wildlife Mitigation Plans for the projects, which were completed in 2011. Additionally, Denver Water and the Subdistrict cooperatively developed Fish and Wildlife Enhancement Plans with significant resources and funding to improve current conditions in the Colorado River (refer to Section 4.0. Voluntary Enhancements).

### **1.6.2 Upper Colorado River Endangered Fish Recovery Program – 10,825 Water**

Denver Water and other water providers have committed to permanently supply 10,825 AF of water per year during the late summer months to support the recovery of four endangered fish species in the Colorado River near Grand Junction – Colorado pikeminnow, razorback sucker, bonytail, and humpback chub. Under the Recovery Implementation Program for Endangered Fish Species in the upper Colorado River Basin, water users on the East and West slopes are required to provide 10,825 AF of water annually to improve aquatic habitat conditions associated with flow. Denver Water and other East Slope water providers bought shares in the Redtop Valley Ditch. The water associated with these shares is now allowed to flow into Granby Reservoir rather than being diverted by the Redtop Valley Ditch. The additional inflow to Granby Reservoir allows 5,412.5 AF

of water to be released from Granby Reservoir without affecting the yield of the Colorado-Big Thompson Project. The remaining 5,412.5 AF was purchased from Ruedi Reservoirs' contract pool by West Slope water providers.

## **1.7 Avoidance and Minimization**

The CWA Section 404(b)(1) Guidelines indicate that “no discharge of dredged or fill material may be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences” (Section 230.10[a]).

Through the Project planning and environmental screening process, Denver Water identified, and the Corps evaluated, a set of alternatives that both avoid many environmental impacts and minimize unavoidable impacts. As described in the Moffat Project Final EIS, three successive levels of screening were applied to a broad range of 303 potential alternative Project components to narrow the list to 14 Project alternatives that were carried forward for further evaluation. The next round of screening focused on potential impacts on aquatic resources and other natural ecosystems. These “Screen 2” criteria included wetlands; aquatic habitat (inundation); aquatic habitat (depletions); threatened and endangered species; and other habitat values (designated wildlife habitat areas, significant habitat features, and Colorado Natural Heritage Program potential conservation areas). Based on the Screen 2 environmental evaluation, nine alternatives were eliminated from further consideration, resulting in five alternatives that were carried forward for further analysis in the EIS.

The preferred alternative, a 72,000-AF expansion of Gross Reservoir, was designed to avoid or minimize direct effects on wetlands and other waters of the U.S. and to mitigate those effects that are unavoidable due to dam construction and reservoir inundation, and is considered by Denver Water to be the least environmentally damaging practicable alternative. As described below, compensatory mitigation measures were developed to reduce or offset wetland and aquatic impacts.

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## 2.0 PROJECT EFFECTS AND PROPOSED MITIGATION MEASURES

This section describes Project effects based on the Moffat Project Final EIS and Denver Water's proposed commitments to mitigate those effects. The Project effects are described in greater detail in Chapter 5 of the Moffat Project Final EIS. Denver Water will provide the Corps with a final plan for mitigating effects, including the required plan elements such as performance standards, monitoring requirements, management plans, financial assurances, etc. if a Section 404 Permit is issued for the Moffat Project.

This section is organized as follows:

### East Slope Mitigation

- Gross Reservoir and South Boulder Creek
- North Fork South Platte and South Platte Rivers

### West Slope Mitigation

- Fraser and Williams Fork Rivers
- Blue River
- Colorado River

## 2.1 Gross Reservoir and South Boulder Creek

The impacts of the Moffat Project on Gross Reservoir, South Boulder Creek and tributaries, and the proposed mitigation commitments to compensate for those impacts, are described below and are summarized in Table 1.

**Table 1. Summary of Gross Reservoir and South Boulder Creek Impacts and Proposed Mitigation**

Project Effects Identified in the EIS	Proposed Mitigation
<b>GROSS RESERVOIR</b>	
<b>Wetland Habitat</b>	
- Permanent impact on 1.95 acres of wetlands due to reservoir enlargement	- DW will purchase sufficient credits from a wetland mitigation bank to compensate for 1.95 acres of permanent wetland impacts
<b>Riparian Habitat</b>	
- Permanent impact on 4 acres of riparian habitat due to reservoir enlargement	- DW will prepare a riparian vegetation establishment plan and will plant 4 acres of native riparian vegetation in suitable locations surrounding Gross Reservoir
<b>Water Quality</b>	
- Minor to moderate short-term decrease in water quality due to organic matter decay, including increases in methylmercury, as a result of filling the expanded reservoir	- DW will prepare a final tree removal plan to remove as much organic material as practicable from the inundation area prior to filling - DW will continue its current water quality monitoring in Gross Reservoir - DW will comply with the Section 401 Water Quality Certification issued by CDPHE



**Table 1. Summary of Gross Reservoir and South Boulder Creek Impacts and Proposed Mitigation (continued)**

<b>Project Effects Identified in the EIS</b>	<b>Proposed Mitigation</b>
<b>Aquatic Biological Resources</b>	
- Short-term increases in methylmercury in the water could also result in increased accumulation in fish tissue	- DW will coordinate with CPW to monitor and evaluate metals levels in fish tissue for 5 years after the initial fill. CPW will determine fishing regulations for the reservoir.
<b>Wildlife Habitat</b>	
- Direct and indirect impacts on elk habitat, forest birds, and other wildlife; moderate impact on elk; and negligible to minor impact on other species	- DW will implement construction BMPs to minimize and mitigate impacts on wildlife habitat - DW will conduct a raptor nest survey in compliance with the Migratory Bird Treaty Act prior to any ground disturbance and establish seasonal no-work buffers if needed to mitigate impacts on raptors and migratory birds
<b>Vegetation</b>	
- Removal of about 456 acres of vegetation - Impacts on about 5 acres of rare plant communities including affecting the viability of four USFS species (Dewey sedge, Sprengel's sedge, tall blue lettuce, and false melic)	- DW will implement construction BMPs to minimize and mitigate impacts on vegetation and forests, and provide weed control - DW will amend its revegetation plan and weed management plan prior to construction in accordance with its FERC license - DW will prepare a final tree removal plan to minimize impacts - DW will document and transplant sensitive plant species subject to inundation in cooperation with the USFS
<b>Cultural Resources</b>	
- Impacts on Gross Dam and Resumption Flume; both historic sites	- DW will comply with the Programmatic Agreement and the FERC license, which stipulate how significant resources are to be handled
<b>Visual Resources</b>	
- Impacts from ground disturbance, new facilities, enlarged reservoir, and quarry site	- DW will mitigate quarry disturbance by contouring, reclaiming, rock staining, selective plantings, and other methods
<b>Recreation</b>	
- Most recreation sites will be inundated, and the recreation experience may be temporarily impacted from construction - Recreation access will be temporarily restricted or limited during construction. Emergency access to Gross Reservoir will be maintained.	- DW will relocate inundated recreation facilities in accordance with Articles 416 and 417 of its FERC license

**Table 1. Summary of Gross Reservoir and South Boulder Creek Impacts and Proposed Mitigation (continued)**

<b>Project Effects Identified in the EIS</b>	<b>Proposed Mitigation</b>
<b>Soils, Air Quality, Noise</b>	
<ul style="list-style-type: none"> <li>- Impacts to 465 acres of soils related to the expansion of the dam, reservoir and related facilities, which can increase erosion and sedimentation into the reservoir and waterways</li> <li>- Short-term impacts related to construction activities including vehicle exhaust, engine combustion emissions and ground disturbance leading to short-term increases of particulate matter less than 10 microns in diameter (PM<sub>10</sub>) and gaseous pollutants (NO<sub>x</sub>, CO, SO<sub>2</sub>, and VOCs)</li> <li>- Short-term, moderate noise impacts related to construction activities, blasting, concrete batch plant, traffic, etc.</li> </ul>	<ul style="list-style-type: none"> <li>- DW will prepare a Stormwater Management Plan and comply with the CDPHE General Permit for Construction Activities</li> <li>- BMPs will be used to address erosion control, stockpiling of materials, dust control, revegetation, materials handling, fuel containment, etc.</li> <li>- DW will obtain and comply with the necessary CDPHE air quality permits</li> <li>- DW will implement confined charge blasting for dam construction to minimize noise</li> <li>- DW will comply with Boulder County noise ordinances</li> </ul>
<b>SOUTH BOULDER CREEK and OTHER WATERS OF THE U.S.</b>	
<b>Aquatic Biological Resources</b>	
<ul style="list-style-type: none"> <li>- Inundation of 1.58 miles (3.53 acres) of streams tributary to the reservoir including South Boulder Creek, Winiger Gulch, Forsythe Gulch, and Forsythe Falls</li> <li>- Minor adverse impact to fish and macroinvertebrates in South Boulder Creek upstream of Gross Reservoir</li> <li>- Minor beneficial impact to fish and macroinvertebrates in South Boulder Creek downstream of Gross Reservoir due to increases in winter flows, reductions in runoff flows and changes in water temperature</li> </ul>	<ul style="list-style-type: none"> <li>- DW will establish a 5,000-AF Environmental Pool in Gross Reservoir to augment flows during low-flow periods benefiting 17 miles of aquatic habitat in South Boulder Creek from the dam to the confluence with Boulder Creek</li> <li>- DW will continue temperature and dissolved oxygen monitoring in South Boulder Creek downstream of the dam per Article 402 of its FERC license</li> </ul>
<b>Channel Morphology</b>	
<ul style="list-style-type: none"> <li>- Negligible to moderate increase in sediment transport and supply due to increase in flow upstream of the reservoir, which may result in localized bed and bank erosion</li> </ul>	<ul style="list-style-type: none"> <li>- DW will continue its monitoring program of South Boulder Creek upstream of the reservoir, and will install protective measures if needed</li> </ul>
<b>Recreation</b>	
<u>Upper South Boulder Creek</u> <ul style="list-style-type: none"> <li>- Beneficial (minor to moderate) impacts on boating due to increased flows</li> <li>- Major impact on whitewater boating due to inundating the Right In My Backyard rapid</li> <li>- Minor impact on the quality of fishing due to a potential reduction in fish habitat</li> </ul> <u>Lower South Boulder Creek</u> <ul style="list-style-type: none"> <li>- Negligible effect on boating</li> <li>- Minor beneficial effect on fishing due to reduced flows</li> </ul>	<ul style="list-style-type: none"> <li>- DW will establish a 5,000-AF Environmental Pool in Gross Reservoir to augment flows during low-flow periods benefiting 17 miles of aquatic habitat in South Boulder Creek from the dam to the confluence with Boulder Creek</li> </ul>

### 2.1.1 Gross Reservoir and Vicinity

#### *Wetlands*

**Project Impacts.** The expansion of Gross Reservoir will result in the loss of 1.95 acres of wetlands due to dam construction and reservoir inundation. These wetlands occur along drainages that are tributary to Gross Reservoir and along the shoreline of the reservoir.

**Proposed Mitigation.** To mitigate impacts on wetlands surrounding Gross Reservoir, Denver Water will purchase sufficient credits from an approved wetland mitigation bank to compensate for permanent impacts on 1.95 acres of wetlands.

#### *Riparian Habitat*

**Project Impacts.** Approximately 4 acres of riparian resources will be inundated by the reservoir expansion, the majority of which occur around Gross Reservoir shoreline and in Forsythe Gulch.

**Proposed Mitigation.** Lost riparian resources are anticipated to reestablish over time at the upper portions of an expanded Gross Reservoir, in the same manner that the existing riparian habitat became established after the initial construction of the reservoir. To facilitate and accelerate this reestablishment, Denver Water will determine areas that are likely to support riparian vegetation and will plant native woody riparian vegetation in these areas. To provide the hydrology necessary to support this riparian vegetation, these plantings will occur once an expanded Gross Reservoir is filled.

Denver Water will prepare a riparian vegetation establishment plan for approval by the Corps, FERC and CPW that will:

- Establish a schedule for the proposed plantings
- Identify the areas for the 4 acres of proposed riparian establishment
- Identify the quantity, size, and species of plant materials
- Establish success criteria and monitoring requirements

#### *Water Quality*

**Project Impacts.** Inundation of the surrounding shoreline (approximately 424 acres) could cause minor to moderate changes to water quality during initial filling operations and, potentially, for several years thereafter, as the organic matter decays. These temporary changes could include increased total organic carbon concentrations and increased productivity (algal growth). However, the EIS analysis concludes that long-term productivity in the reservoir will remain the same or decrease as a result of the Moffat Project, thereby causing no eutrophication. These short-term changes due to inundation of new areas could also include increases in methylmercury (MeHg). This is relevant because Gross Reservoir is currently on the Colorado Department of Public Health and Environment (CDPHE) Monitoring and Evaluation List for mercury concentrations in fish tissue. Refer to Aquatic Biological Resources for further discussion and proposed mitigation.

No long-term adverse impacts were identified for water quality within Gross Reservoir.

**Proposed Mitigation.** To mitigate the effects of the Project on water quality in Gross Reservoir, Denver Water will:

- Remove as much organic material (i.e., vegetation) as practicable from the inundation area prior to filling the enlarged reservoir. Denver Water will prepare a final tree removal plan in cooperation with the USFS, FERC, and Boulder County.
- Continue its current water quality monitoring program in Gross Reservoir and South Boulder Creek (upstream and downstream of the reservoir), including monitoring DO and temperature at the reservoir outlet per Article 402 of the FERC license.
- Comply with requirements of the Section 401 Water Quality Certification issued by CDPHE.

### *Aquatic Biological Resources*

**Project Impacts.** As described under “Water Quality,” there may be a temporary increase in MeHg concentrations in fish tissue in response to the proposed reservoir enlargement. This increase is not expected to be a long-term increase, but instead a temporary, post-inundation phenomenon that peaks in the years following the expansion and subsides over subsequent years. The duration of the effect is uncertain. Therefore, the enlarged Gross Reservoir will likely remain on the CDPHE Monitoring and Evaluation List for elevated levels of mercury in fish tissues similar to many other East Slope reservoirs in Colorado.

**Proposed Mitigation.** To mitigate the effects of the Project on aquatic resources in Gross Reservoir and its tributaries, Denver Water will coordinate with CPW to continue its monitoring and evaluation of metal levels in fish tissue for 5 years after the initial fill of the enlarged reservoir. Data will be provided to CDPHE-WQCD. CPW will use the results of the monitoring in managing fishing regulations for Gross Reservoir.

### *Wildlife Habitat*

**Project Impacts.** Direct impacts on wildlife from Project implementation will include the loss or degradation of habitat and mortality from ground-disturbing activities, while indirect impacts will consist of permanent or temporary displacement of wildlife. The Project will result in the loss of portions of elk habitat (severe winter range, migration corridors, and concentration areas) as well as the loss and fragmentation of habitat for other species. Overall, impacts on elk will be moderate, and negligible to minor on deer and other species. Activities at Gross Reservoir may affect local populations of northern goshawk, flammulated owls, American three-toed woodpeckers, and olive-sided flycatchers, but there will be no effect on regional populations. Construction of Gross Reservoir will have a negligible to moderate impact on USFS Management Indicator Species.

**Proposed Mitigation.** Denver Water prepared the Moffat Collection System Project Fish and Wildlife Mitigation Plan, which was approved by the CWC and CWCB in 2011. Mitigation relevant to wildlife includes compliance with the Migratory Bird Treaty Act (MBTA), use of CPW’s BMPs for wildlife, implementation of revegetation, forest management and weed control, and development of woody riparian plant communities around Gross Reservoir. Specific mitigation measures include:

#### Wildlife Habitat

- During construction, vehicle operation will be limited to designated construction areas, and the limits of the construction area will be fenced where they are adjacent to sensitive habitats.

- Silt fencing, erosion logs, temporary berms, and other BMPs will be used to prevent degradation of habitats adjacent to the construction area by transport of eroded sediment.
- Temporarily disturbed areas will be seeded with an appropriate mixture of native grasses and forbs; shrubs will be planted where appropriate.

#### Migratory Birds

- Denver Water will comply with the MBTA.
- If practicable, trees in the construction footprint will be cleared prior to March 1 or after July 31 to prevent raptors (and other birds) from nesting on site and avoid take of or disturbance to active nests during the breeding season. If construction begins after March 1 or prior to July 31, nest surveys will be conducted prior to construction to ensure that no active nests are present in or near the construction footprint.
- If an active nest is located, protective buffer zones will be established around active nests during construction to avoid disturbance while nesting. Buffer zones and seasonal restrictions will be based on CPW recommendations and on consultation with CPW.

#### *Vegetation*

**Project Impacts.** About 456 acres of vegetation will be permanently impacted by Project construction. Most of the impacts will occur in the ponderosa and ponderosa pine/Douglas fir communities. Because the affected vegetation types are common in the region, losses of vegetation are considered a moderate impact.

Tree clearing will affect about 400 acres around Gross Reservoir. Most of the impacts will occur in the new inundation area (between elevations 7,282 and 7,406 feet) and will occur from site preparation. All trees and wood will be removed from the inundation area and from the shoreline up to elevation 7,410 feet. Construction activities will affect about 5 acres of two globally rare foothills riparian shrub communities and about 1 acre of USFS mapped old growth ponderosa pine. The two globally rare plant communities are tracked by the Colorado Natural Heritage Program: river birch/mesic forb foothills riparian shrub and thinleaf alder/mesic forb riparian shrubland. Impacts to these two communities are considered moderate because they will cause a local loss of biodiversity, but will not substantially affect their overall distribution or abundance.

**Proposed Mitigation.** Denver Water will:

- Collaborate with the USFS, Colorado State Forest Service and Boulder County to review and approve a plan and contractor to remove the trees around Gross Reservoir to ensure the final plan maximizes product utilization and minimizes traffic and environmental effects. Prior to final design, as required by the USFS, Denver Water will perform a timber cruise with a USFS-qualified forester. Denver Water will work closely with the USFS to ensure that forest clearing and revegetation will be consistent with National Forest standards. The final plan will ensure compliance with the CDPHE-Air Quality Control Division and will include BMPs for the tree removal activities.
- Amend its revegetation, rehabilitation and weed management plans in accordance with the FERC license to stabilize and restore areas disturbed by construction activities. The plans will be in compliance with the USFS revegetation guidance. Seed mixes will be weed-free and approved by FERC and USFS.



- Work with the USFS to identify and transplant USFS sensitive plant species found within the inundation area. Denver Water will collect, in cooperation with USFS herbarium, voucher specimens from affected populations to document their presence in the area prior to disturbance. During tree clearing operations, locations of USFS special status plants will be marked in the field prior to clearing operations, with a buffer zone of at least 10 feet. Ground-disturbing activities will be minimized to the extent practicable within the marked populations or buffer zones.

### *Cultural Resources*

**Project Impacts.** Project implementation will permanently affect the Gross Dam and Reservoir and a portion of the Resumption Flume, both of which are considered historic sites. These impacts are considered an adverse effect and treatment of this effect will be required before construction begins.

**Proposed Mitigation.** The Corps, Denver Water, USFS, SHPO, ACHP, Boulder County Historic Preservation Advisory Board, and various American Indian tribes have prepared a Programmatic Agreement (PA) for cultural resources that stipulates how significant cultural and historic resources are to be treated, including site avoidance, protection measures, and/or data recovery. The PA also identifies actions that will be taken by Denver Water in the event that inadvertent discoveries of cultural resources or human remains are made during construction or operation of the Moffat Project. In addition, Denver Water will comply with Article 415 of its FERC license, which contains specific provisions for addressing impacts to any existing or potential historic properties within the FERC project boundary.

### *Visual Resources*

**Project Impacts.** Post-construction impacts on visual resources at Gross Reservoir include short-term effects in disturbed areas until reclamation efforts lessen visual contrasts. Long-term direct impacts on visual resources at Gross Reservoir include changes in scale to the shoreline, reservoir elevation, and dam profile; permanent inundation of scenic areas; relocation of existing facilities and roads; disturbed areas undergoing restoration; a permanently modified quarry site; and a new auxiliary spillway.

**Proposed Mitigation.** Denver Water will mitigate visual effects of the quarry site, as practicable, through contouring, rock sculpting, reclaiming topsoil, selective plantings, and rock staining so that new rock faces and other surfaces blend with existing, adjacent rock outcroppings. The final plan will be developed in conjunction with the FERC and USFS.

### *Recreation*

**Project Impacts.** Project implementation will have direct and indirect impacts on both current and future recreational opportunities at Gross Reservoir. Six of the nine developed recreation areas will be inundated. In addition to restrictions and closures of areas, short-term impacts on the recreation experience may occur from visual and sound disturbances during construction of an enlarged reservoir. During construction, access to some areas of shoreline, on-water access, and associated parking areas may be restricted. Over the long term, increased surface area and an extended shoreline may result in the creation of additional recreational opportunities.

The recreation facilities at Gross Reservoir are under the jurisdiction of FERC and replacement of facilities to be inundated by an expanded Gross Reservoir will be addressed as part of the FERC license amendment process. Denver Water manages recreation at Gross Reservoir under Articles 416 and 417 of the FERC license. As part of its license requirements, Denver Water

developed and is implementing a Recreation Management Plan (RMP) for Gross Reservoir, which was approved by FERC in 2002. The RMP follows the prescribed construction and maintenance of recreation facilities, pursuant to conditions set forth in the current FERC license. Development of the RMP was a collaborative effort with stakeholder and agency input.

**Proposed Mitigation.** Denver Water will relocate all inundated recreation facilities to sites above the proposed high waterline to allow for continuation of their current uses. At the request of numerous stakeholders, Denver Water does not intend to change the current recreational opportunities or management of Gross Reservoir noted in the RMP. Denver Water will submit a relocation plan to FERC as part of the final FERC license amendment application.

### *Soils*

**Project Impacts.** Expansion of the dam, reservoir, and related facilities will permanently affect approximately 465 acres of soils. Soils that are covered by facilities will be permanently lost unless salvaged and used as embankment fill. Construction activities will temporarily disturb approximately 89 acres of soils primarily through earth-moving activities and construction equipment traffic. Some erosion is likely to occur and may adversely affect adjoining areas or deliver sediment to South Boulder Creek. Additional impacts will occur from tree removal around the rim of the reservoir. Trees will be cleared from the inundation area and shoreline up to elevation 7,410 feet. Moderate impacts on soils include erosion resulting from disturbance and compaction during harvest.

**Proposed Mitigation.** Denver Water will prepare a Stormwater Management Plan in compliance with a General Permit for Stormwater Discharges Associated with Construction Activity. BMPs will be used to address erosion control, stockpiling of materials, dust control, revegetation and stabilization of exposed ground, materials handling and fuel containment.

Several methods of tree removal will be used depending on slope, access and presence of rock outcrops. The selected methods will include BMPs to minimize erosion from the harvesting activities.

### *Air Quality*

**Project Impacts.** Short-term air quality impacts are related primarily to on-site construction activities. Temporary off-site air quality impacts will include exhaust emissions from heavy-duty construction equipment, exhaust emissions from construction workers' vehicles and delivery vehicles, and fugitive dust emissions.

**Proposed Mitigation.** Denver Water will perform a general conformity analysis prior to construction to ensure compliance with the National Ambient Air Quality Standards. Recommended mitigation measures and control plans for both fugitive dust and combustion emissions will be developed in compliance with CDPHE-Air Quality Control Division permit requirements.

### *Noise*

**Project Impacts.** Noise impacts are anticipated to be temporary and moderate during on-site construction. On-site construction noise may periodically exceed the EPA noise threshold of 70 A-weighted decibel scale (dBA) for public exposure, but the public will not be exposed to these levels on a continuous basis. Blasting will occur when onsite aggregate quarries are in operation (approximately the first year of aggregate processing) and in the early phases of construction

related to the dam foundation excavation. Blasting will occur only during daylight hours. Off-site construction-related noise is predicted from increased traffic using site access roads.

**Proposed Mitigation.** During blasting, Denver Water will use a seismograph to monitor ground motions and air pressure (noise) vibrations produced from the blasting operations to ensure that acceleration thresholds are not exceeded. Denver Water plans to implement confined charge blasting for dam construction to minimize noise creating temporary moderate impacts.

## 2.1.2 South Boulder Creek and Tributaries

### *Water Quality*

**Project Impacts.** Outflow temperatures from Gross Reservoir are predicted to decrease due to expansion of the hypolimnion. Outflow temperature predictions of a hydrodynamic temperature model of Gross Reservoir indicate that peak outflow water temperatures will decrease on the order of 4.0 to 6.6 degrees Celsius (°C), resulting in outflow water that is cooler than 9°C throughout the year. Cooler temperatures are expected in the creek downstream of the dam to the South Boulder Creek diversion because there is little warming of the water in this segment. Temperatures during the growing season for trout may be several degrees cooler and may be less favorable for growth. Refer to Aquatic Biological Resources for further discussion and proposed mitigation.

**Proposed Mitigation.** Denver Water will continue to monitor temperature and DO in South Boulder Creek downstream of the reservoir in accordance with Article 402 of the FERC license. Additionally, the creation of the Environmental Pool will provide additional habitat for aquatic species in South Boulder Creek. Refer to Aquatic Biological Resources.

### *Aquatic Biological Resources*

#### **Project Impacts.**

**Streamflow.** Operation of the Moffat Project will generally increase flows in South Boulder Creek upstream of Gross Reservoir and decrease flows downstream of the reservoir, which could result in reductions in riparian habitat, fish habitat availability, and minor impacts on fish and invertebrates. While the peak flow will not change, the duration of high flows will increase. Changes in stream flows will be greatest in average and wet years during the runoff months, which coincide with the period that Denver Water's additional diversions will be greatest. Table 2 shows the percent change in flow as a result of the Moffat Project.

**Table 2. Summary of Project Effects on Stream Flows - South Boulder Creek**

Stream Location	Average Annual Flow – Full Use Existing System (AF)	Change Due to Moffat Project Implementation (AF)	Percent Change
South Boulder Creek at Pinecliffe	108,752	10,284	9%
Gross Reservoir Outflow	114,079	9,678	8%
South Boulder Creek near Eldorado Springs	46,330	-985	-2%

Source: Table H-7.4 in Appendix H of the Moffat Project Final EIS.

Waters of the U.S. The expansion of Gross Reservoir will permanently impact about 1.58 miles of streams tributary to the reservoir, resulting in permanent impacts on 3.53 acres of other waters of the U.S. About 8,180 linear feet of stream channel will be inundated by the reservoir along South Boulder Creek, Winiger Gulch, Forsythe Gulch, and an unnamed tributary. An additional 176 linear feet of stream channel downstream of the dam will be impacted by the expanded dam footprint.

Aquatic Habitat. In South Boulder Creek upstream of Gross Reservoir, there will be minimal changes in trout habitat availability. The increases in runoff flows could have an effect on macroinvertebrate populations. The increase in flow will result in a minor adverse impact and could result in decreased density of macroinvertebrates, or macroinvertebrate community composition could shift towards species that prefer fast-moving water.

In South Boulder Creek downstream of Gross Reservoir, the increases in winter flows will result in large increases in rainbow trout habitat availability and the small decreases in spring runoff flows will decrease conditions that may be stressful to early life stages of this species. The higher winter flows will likely alleviate existing winter low flow habitat limitations. However, the cooler temperatures throughout the year may limit trout growth and survival and likely dampen the beneficial effects of greater habitat availability. Higher winter flows and reduced peak flows will also provide more uniform flow conditions for benthic invertebrates. The increases in habitat availability for rainbow trout and macroinvertebrates indicate that the Moffat Project will have minor beneficial cumulative impacts on aquatic resources in South Boulder Creek downstream of the dam.

Portions of Forsythe Canyon, Winiger Gulch and South Boulder Creek upstream of the reservoir will be inundated with the expanded reservoir and transformed from stream habitat into reservoir habitat. There may be a major adverse impact to the fish and macroinvertebrate communities in these streams, but a moderate beneficial impact to the reservoir.

**Proposed Mitigation.** To mitigate the loss of approximately 1.58 miles of stream and effects to the aquatic environment, Denver Water, in cooperation with the cities of Boulder and Lafayette, will construct as part of the Project, a 5,000-AF “Environmental Pool” for the purpose of augmenting flows downstream of Gross Reservoir during low-flow periods. Approximately 17 miles of aquatic habitat in South Boulder Creek from Gross Dam to the confluence with Boulder Creek will benefit from the release of water from the Environmental Pool during low-flow conditions. The Environmental Pool will be filled with water rights owned and provided by the cities of Boulder and Lafayette and released for environmental flows during winter. Denver Water entered into the Environmental Pool IGA to serve as mitigation for any projected adverse aquatic impacts of the Moffat Project on South Boulder Creek and streams tributary to Gross Reservoir, and to provide the flexibility to enhance aquatic habitat downstream of Gross Reservoir.

### *Channel Stability*

**Project Impacts.** Sediment transport and supply are predicted to increase in South Boulder Creek upstream of the reservoir as a result of stream flow changes. The impacts due to flow change and sediment characteristics are expected to be negligible to moderate. Minor amounts of localized bed and bank erosion may occur.

**Proposed Mitigation.** Denver Water currently monitors for channel instability and bank erosion on USFS lands along South Boulder Creek between the Moffat Tunnel and Gross Reservoir, pursuant to its existing FERC license. Denver Water will continue the current monitoring program and will install an additional monitoring site near the inlet to Gross Reservoir if CPW determines it is needed. If localized areas of channel instability are detected, Denver Water and the USFS will jointly develop protective measures to be implemented by Denver Water.

### **2.1.3 Mitigation - Project Construction**

In addition to the regulatory requirements of a Corps' Section 404 Permit and FERC license, Denver Water will comply with other federal, state, and local permits and approvals to implement the Moffat Project. As part of these approvals, Denver Water will implement a variety of BMPs during and following construction to reduce erosion, protect water quality, manage invasive species, suppress dust and noise, minimize traffic delays and emissions, revegetate disturbed areas, and protect or avoid important wildlife habitat. These environmental permits and approvals with BMPs and environmental protection measures include, among others:

- USFWS MBTA Compliance
- Cultural Resources PA under Section 106 of the NHPA
- CDPHE Fugitive Dust Control Plan
- CDPHE Stormwater Management Plan
- CDPHE Section 401 Water Quality Certification
- Materials Handling Plan and Material Abatement Plan, if needed

### **2.1.4 Boulder County – Environmental Protections**

Denver Water is working closely with Boulder County to address concerns regarding temporary construction impacts on the area around Gross Reservoir. Denver Water is proposing measures to minimize, to a reasonable extent, noise, dust, traffic congestion and road wear in the Project area during construction. Some of the types of measures that are being negotiated include restricting truck hauling times during the day and night to minimize noise and traffic congestion, providing shuttle transportation for workers to minimize traffic, restricting truck traffic from using Flagstaff Road, and maintaining soft-surface County Roads used by Project construction traffic and rehabilitating as determined by the Boulder County Transportation Department. Denver Water has offered to maintain all of Gross Dam Road (County Road 77S) during construction.

## **2.2 North Fork South Platte and South Platte Rivers**

The impacts of the Moffat Project on the North Fork South Platte and mainstem South Platte rivers, and the proposed mitigation commitments to compensate for those impacts, are described below and are summarized in Table 3.

**Table 3. Summary of North Fork South Platte and South Platte Rivers Impacts and Proposed Mitigation**

Project Effects Identified in the EIS	Proposed Mitigation
<b>NORTH FORK SOUTH PLATTE and SOUTH PLATTE RIVERS</b>	
<b>Aquatic Biological Resources</b>	
- Flow changes in the North Fork South Platte River and higher concentrations of copper may have minor adverse impacts on aquatic habitat, brown trout populations, and invertebrates	- DW will provide \$1.5 million for stream habitat improvements in the North Fork South Platte River and/or mainstem South Platte River
<b>Channel Morphology</b>	
- Increased flows in the North Fork South Platte River will continue to cause erosive forces and could result in localized bank instability	- DW will monitor five locations for channel instability - If problems occur, DW will contribute \$250,000 for the design and installation of remediation project(s) in cooperation with CPW and USFS
<b>Threatened and Endangered Species</b>	
- Depletions may affect downstream listed species in the lower Platte River in Nebraska	- DW will comply with the 2013 BO, which requires participation in SPWRAP and the Platte River Recovery Implementation Program

### *Aquatic Biological Resources*

#### **Project Impacts.**

Streamflow. Operation of the Moffat Project will change Denver Water's releases from the Roberts Tunnel into the North Fork South Platte River downstream of the Roberts Tunnel outlet. Flows will generally be lower during winter months and higher during summer months. The lower flows during the winter months are due to a change in the artificial flow regime maintained in the North Fork South Platte River by the importation of water from the Blue River and are not the result of any changes to the natural hydrology of the North Fork South Platte River. While the peak flow will not change, the duration of high flows will increase. Changes in stream flows will be greatest in average and wet years during the runoff months, which coincide with the period that Denver Water's additional diversions will be greatest. Table 4 shows the percent change in flow as a result of the Moffat Project.

**Table 4. Summary of Project Effects on Stream Flows - North Fork South Platte and South Platte Rivers**

Stream Location	Average Annual Flow – Full Use Existing System (AF)	Change Due to Moffat Project Implementation (AF)	Percent Change
Cheesman Reservoir Outflow	180,900	3	0%
North Fork South Platte River above Pine	168,195	4,701	3%
South Platte River at Waterton Canyon Gage	100,722	-2,680	-3%

Source: Table H-7.4 in Appendix H of the Moffat Project Final EIS.



**Aquatic Habitat.** The changes in flow could result in reductions in riparian habitat, fish habitat availability, and minor impacts on fish and invertebrates. These flow changes may potentially result in minor decreases in available habitat for brown trout and minor adverse effects to benthic invertebrate populations. The adverse effects may be exacerbated by localized bank instability and increases in copper concentrations.

**Proposed Mitigation.** Denver Water will provide up to \$1.5 million for stream habitat improvements. For example, pool habitat could be created by a combination of boulder placement and grade controls. A management committee consisting of Denver Water, CPW, and USFS will be established to identify locations for improvements. This committee will operate by consensus and make a good faith effort to resolve any conflicts. The committee will also coordinate with the South Platte Enhancement Board to ensure consistency with the South Platte Protection Plan and protection of the Resource Values. CPW will assist with design, permitting, and implementation of aquatic habitat improvements. These funds will be used for stream improvements primarily on public land. Funds may be used for stream restoration on private land, but only where a conservation easement is in place that allows public access. Any restoration activities on private land may be funded by other sources or may be funded through a program of matching private funds with public funds.

#### ***Channel Stability***

**Project Impacts.** Sediment transport and supply are predicted to increase in the North Fork South Platte River upstream of the confluence of the South Platte River as a result of stream flow changes. The impacts due to change in flow and sediment characteristics are expected to be negligible to moderate. Minor amounts of localized bed and bank erosion may occur.

**Proposed Mitigation.** Denver Water will establish a stream bank stability monitoring program at up to five sites on USFS lands along the North Fork South Platte River to monitor for evidence of bank erosion. If any bank erosion is observed, Denver Water will contribute up to \$250,000 for structural modification project(s) on USFS lands. These projects will be done in cooperation with the USFS and CPW.

#### ***Threatened and Endangered Species***

**Project Impacts.** Operation of the Moffat Project will cause new depletions to the South Platte River, which could indirectly affect threatened and endangered species and associated habitat in the Platte River in Nebraska, including the whooping crane, interior least tern, piping plover, pallid sturgeon, and western prairie fringed orchid. Under the ESA, the Corps initiated a formal Section 7 consultation with the USFWS regarding the depletion effects of the Moffat Project on these federally-listed species.

**Proposed Mitigation.** The USFWS issued a BO in 2013 and determined that the proposed depletions associated with the Moffat Project will be covered under Denver Water's participation in SPWRAP, which provides compliance with Section 7 requirements under the Platte River Recovery Implementation Program.

## 2.3 Fraser and Williams Fork Rivers

The impacts of the Moffat Project on the Fraser and Williams Fork rivers and the proposed mitigation commitments to compensate for those impacts, are described below and are summarized in Table 5.

**Table 5. Summary of Fraser and Williams Fork River Basins Impacts and Proposed Mitigation**

Project Effects Identified in the EIS	Proposed Mitigation
<b>FRASER and WILLIAMS FORK RIVERS</b>	
<b>Water Quality/Temperature</b>	
<u>Fraser River</u> - Ranch Creek could have moderate adverse impacts due to increased frequency of elevated stream temperatures - Fraser River downstream of the town of Fraser could have negligible to minor impacts due to increased frequency of elevated stream temperatures	- DW will monitor stream temperature on Ranch Creek and the Fraser River - If temperature standards are exceeded between July 15 and August 31, DW will bypass up to 250 AF of water (Refer to Section 3 Additional Environmental Protections in Grand County for additional DW commitments to address stream temperature issues in the Fraser River Basin)
<b>Aquatic Biological Resources</b>	
<u>Fraser River</u> - Minor adverse impacts on fish and invertebrates in upper sections of the Fraser River; negligible to beneficial effects in lower segments <u>Williams Fork River</u> - Flow reductions will have negligible effects on fish and macroinvertebrates in the mainstem river - Flow reductions will have minor adverse impacts on fish and invertebrates in some tributaries (i.e., McQueary, Jones, Bobtail and Steelman creeks)	- DW will provide \$750,000 for stream habitat restoration projects in the Fraser and upper Williams Fork rivers
<b>Channel Morphology</b>	
<u>Fraser River Basin</u> - No long-term changes in channel morphology are anticipated. Remaining flows are predicted to be high enough to mobilize sediment; flushing of fine sediments and bed mobilization will continue with the Project - Stream segments downstream of DW diversions with no bypass flows currently experience sediment accumulation and/or vegetative encroachment, which is expected to accelerate	- No mitigation measures are proposed (Refer to Section 3 Additional Environmental Protections for additional DW commitments to improve channel stability and sediment transport in the Fraser River Basin.)
<b>Recreation</b>	
<u>Fraser River</u> - Stream flow changes may have moderate to major long-term effects on boating; the average number of boating days within optimum flow range in the Fraser Canyon will be reduced	- No mitigation measures are proposed – other flow mitigation commitments may alleviate boating impacts
<b>Threatened and Endangered Species</b>	
- Likely to adversely affect greenback cutthroat trout, a federally-listed threatened species, due to increased entrainment through DW's diversion structures	- DW will comply with the BO to be issued by the USFWS

### *Water Quality/Temperature*

**Project Impacts.** The reductions in flow could also result in increasing frequency of approaching or exceeding stream temperature standards at some locations. Temperatures exceeding the standards have occurred in the Fraser River and Ranch Creek in July and August based on data collected by the Grand County Water Information Network in 2007 and 2008.

**Proposed Mitigation.** Denver Water will implement the following measures to address stream temperature problems in the Fraser and upper Colorado river basins.

1. *Temperature Mitigation Monitoring.* Commencing when acceptable regulatory approvals are received for the Project, Denver Water will monitor temperature at the locations listed below, which have been approved in the Fish and Wildlife Mitigation Plan. Denver Water will ensure that the data are provided to the LBD Management Committee.
  - a. Fraser River below Crooked Creek near Tabernash (U.S. Geological Survey [USGS] gage #09033300) - an existing real-time gaging and temperature station maintained by the USGS.
  - b. Ranch Creek near Fraser, Colorado (USGS gage #09032000) - an existing USGS gaging station. Denver Water will pay the USGS to install, monitor and maintain a real-time temperature monitoring station on this gaging station prior to Project operations.
  - c. Colorado River downstream of Windy Gap - Denver Water will work with the Subdistrict to install, monitor and maintain two continuous, real-time temperature monitoring stations on the Colorado River at the Windy Gap gage and upstream of the Williams Fork River confluence.
2. *Temperature Mitigation Response.* Denver Water will bypass up to 250 AF of water, at a rate up to 4 cfs, to alleviate temperature problems.
  - a. *Mitigation Response Triggers.* Bypass of the 250 AF will be triggered by the occurrence of any of the following temperature action levels during the period from July 15 to August 31, whether or not the Project is diverting water at the time the trigger occurs.
    - 1) Daily Maximum temperature<sup>1</sup> of 21.2°C (70.2°F) at either of the Fraser River Basin gages and 23.8°C (74.8°F) at either of the Colorado River gages, based on the current acute standard.
    - 2) Maximum Weekly Average Temperature (MWAT)<sup>2</sup> of 17°C (62.6°F) at either of the Fraser River Basin gages and 18.2°C (64.8°F) at either of the Colorado River gages, based on the current chronic standard.

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<sup>1</sup>The Daily Maximum is defined by the Colorado WQCC as the highest 2-hour average water temperature. The Daily Maximum is used for the acute standard with the exclusion of values concurrent with maximum daily air temperatures greater than the 90<sup>th</sup> percentile of historic daily temperature.

<sup>2</sup>The MWAT is defined by the WQCC as the largest mathematical mean of multiple evenly spaced daily temperatures over a 7-day consecutive period, with a minimum of three data points spaced evenly through the day. The chronic standard is determined by the maximum weekly average temperature in a 3-year period with the exclusion of values concurrent with maximum daily air temperatures greater than the 90<sup>th</sup> percentile of historical monthly temperature.

- b. Mitigation Response Action. As stream temperature approaches a temperature action level after the Project is operational, LBD will determine which of Denver Water's facilities should bypass the 250 AF. If agreement cannot be reached by the members of LBD, CPW will decide. Any decision to implement a bypass must
  - a) involve a location at which Denver Water is currently diverting, and
  - b) determine there is sufficient streamflow available for bypass so as to make up to 250 AF available.

Refer to Section 3.0 Additional Environmental Protections in Grand County for additional Denver Water commitments to address stream temperature issues in the Fraser River Basin.

### *Aquatic Biological Resources*

#### **Project Impacts.**

Streamflow. Operation of the Moffat Project will result in additional diversions in the Fraser River, upper Williams Fork River, and their tributaries. Flows will decrease in average and wet years due to the additional diversions by the Moffat Project. These additional diversions will be concentrated during the runoff months of May, June, and July and from September through April flow changes will be 1 cfs or less on average. During dry years, there will be no additional diversions. Table 6 shows the percent change in flow as a result of the Moffat Project.

**Table 6. Summary of Project Effects on Stream Flows - Fraser and Williams Fork Rivers**

Stream Location	Average Annual Flow – Full Use Existing System (AF)	Change Due to Moffat Project Implementation (AF)	Percent Change
Fraser River near Winter Park	7,971	-1,918	-24%
Fraser River below Crooked Creek	82,406	-8,375	-10%
Fraser River at Granby	91,562	-8,375	-9%
Williams Fork above Darling Creek	21,089	-1,907	-9%
Williams Fork Outflow	96,664	-1,701	-2%

Source: Table H-7.4 in Appendix H of the Moffat Project Final EIS.

#### Aquatic Habitat.

*Fraser River.* The reductions in flow will have adverse effects in the upper Fraser River and a negligible to beneficial effect in the lower river to the fish and macroinvertebrate communities. In most of the tributaries, the reductions in flow may result in minor adverse effects by decreasing aquatic habitat availability.

*Williams Fork River.* The reductions in flow may have a negligible effect on the fish and macroinvertebrate communities in the mainstem river, and a minor adverse effect in the four headwater tributaries (i.e., McQueary, Jones, Bobtail and Steelman creeks).

#### **Proposed Mitigation.**

- *Aquatic Habitat Restoration.* Denver Water will place \$750,000 in an escrow account within one year of receiving acceptable regulatory approval for the Moffat Project, for stream habitat restoration projects to compensate for reduced flows caused by the Project and the potential decrease in aquatic habitat in the Fraser and upper Williams Fork river basins. Denver Water and CPW, in consultation with other members of the LBD Management Committee, will determine appropriate locations and general concepts for

the stream habitat mitigation projects. CPW will ultimately be responsible for the actual design of the stream habitat projects, and Denver Water will be responsible for permitting, constructing, and maintaining the aquatic habitat improvements. Denver Water's costs for design, permitting, and maintaining the aquatic habitat improvements are in addition to the \$750,000 mentioned above. The LBD parties will work to ensure that the design and implementation of the projects complement the enhancement efforts occurring in the Fraser River Basin.

Mitigation funds may be used for stream improvements on private lands, but preference will be given to those lands where public access is allowed or where matching funds are provided. Any stream improvement on private lands will require landowner permission and a permanent easement granted to Denver Water or CPW to ensure the mitigation measures remain effective.

- *Cutthroat Trout Habitat Improvement.* Denver Water will provide funding (\$72,500) to CPW to construct a barrier and restore cutthroat trout habitat in Grand County. CPW will select a headwater stream that currently does not support cutthroat trout, construct a barrier at the downstream end of the habitat, eradicate all the trout in the stream upstream of the barrier, and then reintroduce a conservation population of cutthroat trout. Denver Water will provide the funding and assist CPW in constructing the barrier when acceptable regulatory approvals are received for the Project.

### *Channel Morphology*

**Project Impacts.** Additional localized sediment deposition, particularly near diversions, is anticipated due to the reductions in flow. However, remaining peak flood events are predicted to be high enough to mobilize sediment at a frequency that long-term changes in channel morphology are not anticipated. The exception is downstream of diversions in locations where no bypass flows occur. Sediment accumulation and/or vegetative encroachment currently exist in these areas and are expected to accelerate with the Moffat Project. As a result, channel width may decrease and the amount and size of vegetation in the channel may increase.

**Proposed Mitigation.** No mitigation is proposed because there are no identified long-term impacts related to the Moffat Project. Refer to Section 3 for additional environmental protections to improve channel stability and sediment transport in the Fraser River Basin.

### *Recreation*

**Project Impacts.** Operation of the Project may have long-term adverse impacts on boating on the Fraser River. These impacts will include a reduction in the average number of days when boating could occur within the optimum flow range in the Fraser Canyon, as well as the length of the boating season. Given the low use levels for boating in this segment of the Fraser River, coupled with a loss of approximately 3.5 days per year to boat within optimum flow levels, this represents a loss of approximately 17 percent (%) of available use days. The Project may have a negligible to minor effect on fishing in the Fraser River. Because the Project may have a minor adverse effect on the fish communities in North Fork Ranch Creek, there may be an associated minor adverse impact on the quality of the recreational fishing experience in this stream.

**Proposed Mitigation.** No mitigation is proposed – other flow and environmental commitments may offset boating impacts.

### *Threatened and Endangered Species*

**Project Impacts.** Operation of the Project is likely to adversely affect greenback cutthroat trout, a federally threatened species, due to increased entrainment through Denver Water's diversions in the Moffat Collection System. Greenback cutthroat trout are found in Bobtail and Steelman creeks in the Williams Fork River Basin and Little Vasquez and Hamilton creeks in the Fraser River Basin. The Project will not affect the conservation populations upstream of the diversions.

**Proposed Mitigation.** The Corps is currently engaged in Section 7 consultation with the USFWS regarding effects to greenback cutthroat trout. The Corps, USFWS, CPW, USFS and Denver Water are evaluating mitigation options. The Corps intends to submit a separate BA on greenback cutthroat trout in the second quarter of 2014. The USFWS intends to issue a BO prior to the Corps issuing its ROD.

#### **2.3.1 Determining When Diversions Are Project Diversions**

When dealing with mitigation, enhancement measures, and additional environmental protections, all intended to address the aquatic environment, it is important to distinguish between flow changes caused by diversions attributable to Denver Water's existing system and the incremental impacts caused by diversions related to operation of the Project, so that mitigation can be measured for regulatory compliance purposes. The following accounting procedure will be used to distinguish whether a flow change is being caused by the diversions for Denver Water's existing system (which is not subject to mitigation requirements) or by diversions for the Project.

After the Project is constructed, daily reservoir accounting will first credit the water diverted by Denver Water from the Williams Fork and Fraser river basins to fill the existing, "Old Water" capacity of Gross Reservoir, which is 41,811 AF. When the amount of Old Water in storage equals 41,811 AF, the next increment of water put into storage at Gross Reservoir from the Williams Fork and Fraser river basins will be counted as "Project Water." The Old Water is the first water stored in Gross Reservoir and the first water taken out of storage. Project Water does not include water stored from South Boulder Creek or flow-through water.<sup>3</sup>

#### **2.3.2 Learning By Doing**

LBD is a cooperative environmental effort of interested entities, including Denver Water, Northern Colorado Water Conservancy District, the Subdistrict, Middle Park, Grand County, River District, Trout Unlimited and CPW. LBD addresses the aquatic environment in the Fraser and Williams Fork river basins and the mainstem of the Colorado River from the outflow of Windy Gap Reservoir to its confluence with the Blue River. Refer to Section 4.0 for more details on LBD.

Since LBD is integral to success of the MECP, Denver Water will request that the Corps add a permit condition to the Section 404 Permit requiring Denver Water to remain in good standing and actively participate in LBD for as long as the LBD is functioning. If LBD ceases to function, the requirement will be for Denver Water to participate in an alternative process approved by the Corps that is dedicated to implementing the elements of the MECP.

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<sup>3</sup>Flow-through water is water diverted and passed directly through Gross Reservoir to meet demand without being stored in the enlarged reservoir. Flow-through water is not considered Project Water because Denver Water could and would divert and pass through that water without the Project.



## 2.4 Blue River

The impacts of the Moffat Project on the Blue River are described below and are summarized in Table 7.

**Table 7. Summary of Blue River Impacts and Proposed Mitigation**

Project Effects Identified in the EIS	Proposed Mitigation
<b>BLUE RIVER</b>	
<b>Recreation</b>	
- Minor adverse impact on recreational boating and no impact on fishing	- None – other flow mitigation commitments may alleviate impacts on boating

### *Aquatic Biological Resources*

#### **Project Impacts.**

**Streamflow.** Flows in the Blue River Basin will decrease about 5% in average and wet years during summer months, which coincide with the period that Denver Water's additional diversions will be greatest, and increase slightly during winter months due to differences in Roberts Tunnel diversions and spills at Dillon Reservoir. Flow changes in the Blue River Basin are driven primarily by seasonal shifts in WTP operations. There will be a reduction in winter operations of Foothills and Marston WTPs because the Moffat WTP will operate at a minimum level during winter. Table 8 shows the percent change in flow as a result of the Moffat Project.

**Table 8. Summary of Project Effects on Stream Flows - Blue River**

Stream Location	Average Annual Flow – Full Use Existing System (AF)	Change Due to Moffat Project Implementation (AF)	Percent Change
Dillon Reservoir Outflow	96,668	-4,787	-5%
Green Mountain Reservoir Outflow	256,192	-4,810	-2%
Blue River at Mouth	278,089	-4,810	-2%

Source: Table H-7.4 in Appendix H of the Moffat Project Final EIS.

**Aquatic Habitat.** Implementation of the Moffat Project will have negligible effects on the fish and macroinvertebrate communities in the Blue River.

### *Recreation*

**Project Impacts.** Project implementation and associated flow reductions will have a minor adverse effect on recreational boating. Due to reductions in flow during summer months, the number of days when flows are within the optimum range, as identified in the Grand County Stream Management Plan (GCSMP), decreases in some years and increases in others, though the degree of change is not notable in most years. Over the 45-year hydrologic modelling period, the number of days that fall within the optimum range is predicted to decrease from 459 to 419 days for kayaking, which on average will be less than 1 day per year. For rafting, a similar degree of change is predicted to occur, with a reduction of 52 days over the period of record, or just over 1 day on average. Implementation of the Moffat Project will have no effect on the quality of the fishing experience along the Blue River.

## 2.5 Colorado River

The impacts of the Moffat Project on the upper Colorado River and the proposed mitigation commitments to compensate for those impacts are described below and are summarized in Table 9.

**Table 9. Summary of Upper Colorado River Impacts and Proposed Mitigation**

Project Effects Identified in the EIS	Proposed Mitigation
<b>COLORADO RIVER</b>	
<b>Water Quality/Temperature</b>	
- Negligible impact on stream temperature	- DW will install two temperature monitoring stations and monitor stream temperature on the Colorado River - If temperature standards are exceeded between July 15 and August 31, DW will bypass up to 250 AF of water
<b>Threatened and Endangered Species</b>	
- Likely to adversely affect Colorado River endangered fish species due to flow depletions	- DW will comply with the 2013 BO, which requires DW to pay a fee to support the Upper Colorado River Endangered Fish Recovery Program

### *Aquatic Biological Resources*

Streamflow. Changes in stream flows in the Colorado River will be greatest in average and wet years during the runoff months, which coincide with the period that Denver Water's additional diversions will be greatest. Table 10 shows the percent change in flow as a result of the Moffat Project.

**Table 10. Summary of Project Effects on Stream Flows – Upper Colorado River**

Stream Location	Average Annual Flow – Full Use Existing System (AF)	Change Due to Moffat Project Implementation (AF)	Percent Change
Colorado River below Windy Gap	134,685	-7,817	-6%
Colorado River below Confluence with Williams Fork River	252,699	-9,618	-4%
Colorado River near Kremmling	650,723	-14,374	-2%

Source: Table H-7.4 in Appendix H of the Moffat Project Final EIS.

Aquatic Habitat. Implementation of the Moffat Project will have negligible effects on the fish and macroinvertebrate communities in the upper Colorado River.

### *Water Quality*

**Project Impacts.** Operation of the Moffat Project will cause depletions to the upper Colorado River Basin, which may result in elevated stream temperatures on hot summer days.

**Proposed Mitigation.** Denver Water will work with the Subdistrict to install, monitor and maintain two continuous real-time temperature monitoring stations on the Colorado River to be located at the Windy Gap stream gage and upstream of the Williams Fork River confluence. Refer to Section 2.3 Fraser and Williams Fork Rivers, for a description of the response actions and additional environmental protections if water temperatures in the Colorado River reach or exceed State standards.

### *Threatened and Endangered Species*

**Project Impacts.** Operation of the Moffat Project will cause depletions to the upper Colorado River Basin. The reductions in flow are likely to adversely affect four endangered fish species: bonytail chub, Colorado pikeminnow, humpback chub and razorback sucker. Under the ESA, the Corps initiated formal Section 7 consultation with the USFWS regarding the depletion effects on these federally-listed species. Denver Water signed a Recovery Agreement with the USFWS in 2000, which governs consultations under Section 7 of the ESA with respect to depletions caused by water users. New depletions of more than 100 AF/yr are assessed a one-time fee to help support the Upper Colorado River Endangered Fish Recovery Program.

**Proposed Mitigation.** The USFWS issued a BO for the Moffat Project in December 2013 determining that the proposed depletions associated with the Moffat Project will be covered under the Colorado River Programmatic BO. Denver Water will comply with the BO and make a payment as determined by the USFWS to help support the Upper Colorado River Endangered Fish Recovery Program.

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### 3.0 ADDITIONAL ENVIRONMENTAL PROTECTIONS IN GRAND COUNTY

The Moffat Project is an enlargement of Gross Reservoir in Boulder County. The large majority of the water to fill the enlarged reservoir will be diverted from streams in Grand County using Denver Water's existing diversion facilities. Since the permitting process for the Project began, Grand County and Denver Water executed the CRCA, and have begun a new way of doing business together. Refer to Section 4.0 for further discussion of CRCA and LBD.

The Additional Environmental Protections describe commitments by Denver Water to assure the environment in Grand County is protected beyond purely mitigating impacts identified in the Final EIS potentially caused by the Project. These commitments will be incorporated as Section 404 Permit conditions for the Moffat Project.

#### *Temperature*

If Denver Water has already bypassed the 250 AF and the response triggers listed below occur, Denver Water will undertake the additional response actions described below.

- A. **Additional Environmental Protection Response Triggers.** Additional Environmental Protections will be warranted by the occurrence of either of the following temperature response triggers during the period from July 15 to August 31 when the Project is diverting.
  - 1) Either of the Fraser River Basin gages (USGS gage #09033300 and/or USGS gage #09032000) records a Daily Maximum temperature of 21.2°C (70.2°F).
  - 2) Either of the Fraser River Basin gages records an MWAT of 17°C (62.6°F).
- B. **Additional Environmental Protection Actions.** Depending on where the Response Triggers occur, Denver Water will coordinate with LBD and implement either one or both of the following measures.
  - 1) Ranch Creek. At its Ranch Creek diversion, Denver Water will bypass an amount of water up to the natural inflow at the Ranch Creek diversion that will maintain the flow in Ranch Creek at the USGS gaging station near Fraser, Colorado (USGS gage #09032000) at 6 cfs (which is 2 cfs above the CWCB's in-stream flow right). This operation will continue until the temperature falls below the Response Trigger or Project Water is no longer being diverted.
  - 2) Fraser River. At its Fraser River and/or Jim Creek diversion(s), Denver Water will bypass an amount of water up to the combined natural inflow at the Fraser River and/or Jim Creek diversions that will maintain the flow in the Fraser River at the Winter Park USGS gage (#0902400) at 14 cfs (which is 6 cfs above the CWCB's in-stream flow right for the Fraser River at this location). This operation will continue until the temperature falls below the Response Trigger or Project Water is no longer being diverted. Denver Water will use reasonable efforts to provide the additional flows from the Jim Creek diversion to assure a flow in Jim Creek.

If after no more than 20 years of Project operation, the Additional Actions are determined by LBD and verified by the CDPHE to have a *de minimis* effect in reducing the stream temperature below the temperature response triggers at USGS gage #09032000 or USGS gage #09033300 when the Project is diverting, Denver Water will contribute \$1 million to LBD for the exclusive purpose of designing and constructing projects to address stream temperature issues in the Fraser River Basin.

### *Flushing Flows*

The flows described in this section have been identified in the GCSMP as being desirable (without regard to whether the need for the flows was created by the Moffat Project) to improve channel stability and sediment transport. Denver Water will use reasonable efforts to provide water on an as-available basis to help achieve the desired flows once the Project becomes operational without regard to whether the Project creates the need for the flows. Denver Water will inform LBD when flows are available in excess of those needed for the Project or by its existing system, and will coordinate with LBD on the timing and location of the flows to achieve the flows described below. Denver Water will make reasonable efforts to provide the following flows for a minimum of 72 consecutive hours in 40% of the years (16 out of 40 years) and 3 out of every 10 years.

- Fraser River as measured at the Winter Park USGS gage #09024000—up to 80 cfs mean daily discharge.
- St. Louis Creek as measured at the St. Louis Creek USGS gage #09026500—up to 70 cfs mean daily discharge.
- Vasquez Creek as measured at the diversion—up to 50 cfs mean daily discharge.
- Ranch Creek as measured at the USGS gage #09032000—up to 40 cfs mean daily discharge.

If after no more than 20 years of Project operation, the Flushing Flows defined above are determined by LBD and verified by the CDPHE to have a *de minimis* effect in addressing the concerns regarding channel stability and sediment transport, Denver Water will contribute \$1 million to LBD for the exclusive purpose of designing and a constructing project(s) to improve channel stability and sediment transport in the Fraser River Basin.

Prior to the Project becoming operational, Denver Water will work with LBD to identify opportunities to voluntarily provide flushing flows for the dual purposes of looking for operation issues that may need to be addressed and to test different prescriptions for addressing channel stability issues.

Fraser River Sediment Pond. Denver Water will continue to operate the Fraser River Sediment Pond as provided in the IGA between CDOT, Grand County, Town of Winter Park and Denver Water, dated June 8, 2011, to reduce the sediment load to the Fraser River from traction sand used by CDOT on Berthoud Pass.



## 4.0 VOLUNTARY ENHANCEMENTS FOR AQUATIC RESOURCES

In addition to the mitigation measures and additional environmental protections described in Sections 2.0 and 3.0 that address Project-related impacts, Denver Water has voluntarily entered into binding agreements with various stakeholders to provide significant resources to restore and enhance aquatic resources in Grand County. These enhancements are intended to address both current and future conditions of the aquatic environment without regard to causation.

Most of the enhancement resources to be provided by Denver Water under contracts are contingent upon the status of the Project. Some enhancement efforts can begin in the short term, upon Denver Water's receipt and acceptance of federal permits, while other resources will be available once the Project is operational. For purposes of clarifying how enhancements will work, it is assumed that the permitting process will be concluded late in 2015, and that the Project would become operational in 2021. Therefore, the period 2015-2021 is defined for illustrative purposes as the **Interim Period**, and after 2021 is the **Project Period**. When the Interim Period begins and ends and when the Project Period begins will change if issuance of permits or operation of the Project is delayed.

### Colorado River Cooperative Agreement

In 2013, Denver Water, along with Grand County, Summit County, the River District, and numerous other entities, signed the CRCA. The CRCA provides a framework for numerous actions to benefit water supply, water quality, recreation, and the environment. Denver Water's resource commitments are contingent upon the issuance of permits necessary for the construction of the Moffat Project. A copy of the CRCA can be found in Appendix M-5 of the Moffat Project Final EIS.

#### A. Learning by Doing Cooperative Effort

Under the CRCA, Denver Water has entered into the LBD IGA with Grand County, the River District and Middle Park. The explicit purpose of LBD is to "maintain and, where reasonably possible, restore or enhance the condition of the aquatic environment in Grand County." The parties to LBD intend "to build and promote a stable, permanent, relationship that respects the interests and legal responsibilities of the parties, while achieving the goals of the Cooperative Effort." A copy of the LBD IGA can be found in Appendix M-4 of the Moffat Project Final EIS.

LBD is a unique and groundbreaking effort to manage an aquatic environment on a permanent cooperative basis. Importantly, LBD "will not seek a culprit for changes in the condition of the stream, but will provide a mechanism to identify issues of concern and focus available resources to address those issues." LBD will be implemented through the ongoing work of a management committee comprised of the parties to the LBD IGA, plus Northern Water, Colorado Parks and Wildlife, and Trout Unlimited. All the parties to the LBD IGA have agreed to contribute resources on an ongoing basis. The most significant resources are those provided to Grand County by Denver Water under the CRCA, not the least of which is its ongoing permanent involvement in the LBD effort. The actions undertaken by LBD are to be coordinated with mitigation actions related to the Moffat Project, thereby increasing the effectiveness of both efforts.

**B. Enhancement Resources Available During Interim Period**

1. LBD During Interim Period.

- a. Denver Water Resources Provided. LBD will become effective upon Denver Water's acceptance of permits related to the Moffat Project. Under the CRCA, the following resources will become available to LBD during the Interim Period.
  - 1) \$1.25 million for aquatic habitat improvements.
  - 2) \$2 million for water quality projects, including but not limited to improvements to the capacity of wastewater treatment plants. Although this fund will be administered by Grand County and several sanitation districts, the projects should be coordinated through LBD.
  - 3) As determined by Denver Water on a case-by-case basis, Denver Water will use the flexibility in its system and provide in-kind contributions of people, equipment, and material to benefit LBD efforts.
  - 4) Denver Water will undertake voluntary pilot projects using the environmental water described below that may become available in the Interim Period.
- b. LBD Monitoring Program. In the IGA, the LBD parties specifically agreed to develop a stream monitoring plan to monitor conditions for the purposes of identifying and responding to potential changes to the environment; defining desired improvements and modifications; and measuring the effectiveness of actions taken. Monitoring will help identify the stressors that may cause impacts to the aquatic environment, regardless of causation, so the stressors can be addressed by LBD. This monitoring program is a voluntary effort as defined in the CRCA and is not part of the regulatory process.
  - 1) *Defining Stream Conditions in Grand County.* A common data base for the Fraser River Watershed should be established to better understand the relationship between hydrologic changes and impacts to the aquatic environment; the role of naturally-occurring conditions such as climate change, beetle kill, air temperature or wildfire; and the effectiveness of different management responses to address problem areas. An example of potential hydrologic changes is the increased diversions by Denver Water using its existing infrastructure, which will occur prior to Project operation. Using the common data base, Denver Water and other parties in the Fraser Basin can participate in voluntary operational experiments to develop prescriptions for important stream reaches. Prescriptions might include operational actions, restoration projects, and other voluntary efforts.

The LBD parties have agreed to rely on the information contained in the GCSMP and to enhance the information in the Plan. The LBD Monitoring Plan will incorporate elements used during Phase 3B of the GCSMP. Monitoring under LBD "will be used to identify changes in the aquatic environment, identify critical stream reaches, assign priorities for action steps, evaluate the effectiveness of actions taken, and to modify and refine strategies for achieving goals of the Cooperative Effort." As members of the LBD management team, Denver Water and Grand County will advocate for the LBD Monitoring Plan to address the issues described below.

- 2) *Water Temperature.* Monitoring water temperature will help improve the understanding of the relationship between water temperature at the mouth of tributaries and higher up in the watershed, and the thermal interactions among water flow, air temperature, shading and channel configuration.
    - LBD should expand the existing network of water temperature data loggers to other streams and locations in the Fraser River Basin where flow data is available. Temporary loggers should be placed near the mouth and at upstream locations in streams experiencing temperature issues. The LBD Management Team will identify locations for additional data loggers and how long loggers remain in the field.
    - Air temperature should be monitored at each water temperature data logger location and at a few general locations in the watershed.
    - Data from the loggers would be used to determine where and how many real-time temperature monitoring stations LBD should deploy throughout the basin.
  - 3) *Channel Stability and Sediment Transport.* Enhancement of the GCSMP described in the LBD IGA should include additional channel stability and sediment transport data and analysis, including the analysis used in the Moffat Project Final EIS, to develop valid prescriptions for specific stream reaches.
  - 4) *Benthic Macroinvertebrate Monitoring.* LBD should design and implement annual monitoring for macroinvertebrates, using Colorado's Multi-Metric Index or another agreed to methodology. Monitoring locations should represent, at a minimum, the four stream segments in the Fraser River Watershed defined in the CDPHE-WQCC's Standards and Classifications for the Upper Colorado River (5 CCR 1002-33). The purpose of the monitoring is to establish a baseline to identify priority stream reaches and test the effectiveness of management activities initiated by LBD.
  - 5) *Riparian Areas and Wetland Monitoring.* Denver Water will work with LBD to design and implement a mapping program for riparian vegetation in the Fraser River Watershed. Locations for the monitoring efforts will be determined by LBD, and should include, at a minimum, a species inventory and photo documentation.
- c. Use of LBD Resources. The parties to LBD, including Denver Water, have committed to develop an annual operations plan to maximize the stream environmental benefits produced by the available resources, including the water and funding contributed by Denver Water. The plan will explore opportunities for coordinated operations of diversion structures and reservoir releases among all water users in Grand County, including Northern Water; the Subdistrict; Reclamation, Denver Water; Middle Park; River District; and in-county diversions for agricultural, municipal, industrial, and others uses. The purpose of coordinated operations is to allow the water users to meet the supply requirements of their systems, while maximizing the effectiveness of LBD. It is anticipated that coordinated operations could greatly enhance the effectiveness of such activities. Denver Water and Grand County agree that some of these resources should be dedicated to the same issues addressed by the mitigation measures to leverage benefits to the stream environment.

- 1) *Temperature.* Helping to ameliorate temperature issues in the Fraser River Basin and the Colorado River is one of LBD's priorities. Using the data generated through the LBD Monitoring Plan described above, experimental voluntary responses (e.g., changes in diversions, increased shading, and modified channel configurations) will be tested to define possible combinations of actions to address temperature issues. As part of voluntary pilot projects, Denver Water will release available water in excess of its needs when stream temperatures are measured within 1°C of the daily maximum acute temperature standard and when stream temperatures are measured at or above the MWAT chronic standard at agreed upon locations.
- 2) *Channel Stability.* Based on the supplemental data and analysis provided through the LBD Monitoring Plan, LBD should begin to develop prescriptions to address channel stability and sediment transport. As part of voluntary pilot projects, Denver Water will use water on a voluntary basis to test the prescription for flushing flows and to determine potential operational issues with releasing flushing flows. In addition, LBD should address sediment loading issues through mechanical means. For example, Denver Water has already proposed a joint effort with LBD to replace the culvert downstream of the Fraser River diversion structure with one that is more fish friendly and designed to reduce sediment into the Fraser River.
2. *Fish and Wildlife Enhancement Plan.* In 2011, Denver Water submitted a voluntary Fish and Wildlife Enhancement Plan to improve the existing aquatic environment in the Colorado River downstream of the Windy Gap diversion structure, which was approved and adopted by CPW and the CWCB. The Fish and Wildlife Enhancement Plan will become effective once Denver Water and the Subdistrict have received acceptable permits for the Moffat Project and the WGFP, respectively. The main component of the Fish and Wildlife Enhancement Plan is the Upper Colorado River Habitat Project, funded and implemented jointly with the Subdistrict and CPW. Denver Water and the Subdistrict will contribute \$6 million for the Upper Colorado Habitat Project to improve the existing aquatic conditions in approximately 17 miles of the Colorado River from the Windy Gap Diversion to the Kemp-Breeze State Wildlife Area downstream of the confluence with the Williams Fork River. A copy of the Fish and Wildlife Enhancement Plan can be found in Appendix M-4 of the Moffat Final EIS.
3. *Wild and Scenic River Funding.* As part of the CRCA package, Denver Water will provide \$1 million within one year of receiving acceptable regulatory approvals for the Project to be used for flow-related projects to protect outstandingly remarkable values in the Wild and Scenic River management program for the Colorado River. Any use of these funds will be coordinated with the Wild and Scenic Rivers Stakeholder Group.
4. *Forest Restoration Funds.* Under the CRCA, certain East Slope recipients of water from Denver Water will pay a surcharge into a West Slope Fund. The West Slope Fund could begin to receive funds as early as 2014. A portion of that surcharge, 1.25% of Denver Water's standard outside-service-area rate for nonpotable water, will be dedicated to projects in Grand County for forest restoration and aquatic improvements related to forest health. This funding will serve to augment Denver Water's commitment to watershed health through its nationally-recognized Forests to Faucets partnership with the USFS.

5. Grant Funding. Denver Water will participate in LBD efforts to obtain grant funding from a variety of public and private sources, once LBD is actively functioning.

**C. Additional Enhancement Resources Available During the Project Period**

Once the Project is operational, the mitigation measures will become operational. In the CRCA, Denver Water has committed additional enhancement resources to Grand County that will also become available to LBD at that time. Denver Water and Grand County share the goal of blending the water and non-water resources managed under LBD with the mitigation package to provide the maximum value for the stream environment.

1. Monetary Resources Provided to LBD.

- a. \$2 million for environmental enhancements.
- b. \$1 million for use in pumping water at Windy Gap to Granby Reservoir for subsequent release to improve the aquatic environment in the Colorado River below Granby Reservoir.

2. Water Dedicated to Stream Flow. The amounts of water described below will become available on an annual basis and will be managed through LBD for environmental purposes. To ensure that the water bypassed or released by Denver Water actually arrives at the intended stream reaches without being diverted by others, Denver Water and Grand County have entered into a water delivery agreement with the CWCB. The water will be administered by the Colorado State Engineer to its intended stream location for instream flows. Denver Water, Grand County, and the CWCB have filed an application in Colorado water court to obtain the adjudication of a decree that will allow this use of water for instream purposes to improve aquatic habitat as follows:

- a. 1,000 AF of water each year released from Denver Water's Fraser River collection system in Grand County.
- b. Up to 1,000 AF released from Williams Fork Reservoir. This commitment also includes the use of up to 2,500 AF of storage in Williams Fork Reservoir to manage the releases and provide the most benefit for the aquatic environment.

3. Use of Resources.

- a. Water Resources. LBD could coordinate use of the Fraser River 1,000 AF of bypasses and the Williams Fork River releases with the 250 AF from the Fish and Wildlife Mitigation Plan and the Additional Temperature Response water defined in this Mitigation Plan. These resources could be used if stream temperature monitoring in the Fraser River Basin indicates a need for action in accordance with the temperature response triggers defined in Subsection I.A.3, and also to enhance sediment transport and channel stability conditions of streams in Grand County not addressed in the mitigation measures or to supplement the mitigation measures.
- b. Non-Water Resources. Long-term voluntary non-water actions (e.g., vegetative shading, install narrower and deeper channels, channel bank undercuttings, etc.) would be defined and implemented through LBD and coordinated with the application of the non-water mitigation actions to augment any water responses.

**D. Increased Bypasses from Fraser River Collection System**

Denver Water is required by the USFS or the Bureau of Land Management to bypass specified flows at its points of diversion on the Fraser River, Vasquez Creek, St. Louis Creek and Ranch Creek. Once the Project has become operational, Denver Water will commit to not reduce these bypasses of water, except when Denver Water has implemented a ban on residential lawn watering in its service area. Denver Water estimates that this commitment will bypass an additional 2,000 to 3,000 AF of water in the streams below its diversions, which will serve to maintain aquatic habitat during critical drought periods.



## 5.0 SUMMARY OF COMMITMENTS

This section and Table 11 provides a summary of the mitigation measures, additional environmental protection and non-regulatory environmental enhancement committed to by Denver Water.

**Table 11. Summary of Moffat Project Impacts and Proposed Mitigation**

Project Effects Identified in the EIS	Proposed Mitigation
<b>GROSS RESERVOIR</b>	
<b>Wetland Habitat</b>	
- Permanent impact on 1.95 acres of wetlands due to reservoir enlargement	- DW will purchase sufficient credits from a wetland mitigation bank to compensate for 1.95 acres of permanent wetland impacts
<b>Riparian Habitat</b>	
- Permanent impact on 4 acres of riparian habitat due to reservoir enlargement	- DW will prepare a riparian vegetation establishment plan and will plant 4 acres of native riparian vegetation in suitable locations surrounding Gross Reservoir
<b>Water Quality</b>	
- Minor to moderate short-term decrease in water quality due to organic matter decay, including increases in methylmercury, as a result of filling the expanded reservoir	<ul style="list-style-type: none"> <li>- DW will prepare a final tree removal plan to remove as much organic material as practicable from the inundation area prior to filling</li> <li>- DW will continue its current water quality monitoring in Gross Reservoir</li> <li>- DW will comply with the Section 401 Water Quality Certification issued by CDPHE</li> </ul>
<b>Aquatic Biological Resources</b>	
- Short-term increases in methylmercury in the water could also result in increased accumulation in fish tissue	- DW will coordinate with CPW to monitor and evaluate metal levels in fish tissue for 5 years after the initial fill. CPW will determine fishing regulations for the reservoir.
<b>Wildlife Habitat</b>	
- Direct and indirect impacts on elk habitat, forest birds, and other wildlife; moderate impact on elk; and negligible to minor impact on other species	<ul style="list-style-type: none"> <li>- DW will implement construction BMPs to minimize and mitigate impacts on wildlife habitat</li> <li>- DW will conduct raptor nest surveys in compliance with the MBTA prior to any ground disturbance and establish seasonal no-work buffers, if needed to mitigate impacts on raptors and migratory birds</li> </ul>
<b>Vegetation</b>	
<ul style="list-style-type: none"> <li>- Removal of about 456 acres of vegetation</li> <li>- Impacts on about 5 acres of rare plant communities including affecting the viability of four USFS species (Dewey sedge, Sprengel's sedge, tall blue lettuce, and false melic)</li> </ul>	<ul style="list-style-type: none"> <li>- DW will implement construction BMPs to minimize and mitigate impacts on vegetation and forests, and provide weed control</li> <li>- DW will amend its existing revegetation plan and weed management plan prior to construction in coordination with FERC and USFS</li> <li>- DW will prepare a final tree removal plan to minimize impacts</li> <li>- DW will document and transplant sensitive plant species subject to inundation in cooperation with the USFS</li> </ul>

**Table 11. Summary of Moffat Project Impacts and Proposed Mitigation (continued)**

<b>Project Effects Identified in the EIS</b>	<b>Proposed Mitigation</b>
<b>Cultural Resources</b>	
- Impacts on Gross Dam and Resumption Flume; both historic sites	- DW will comply with the PA and the FERC license, which stipulates how significant resources are to be handled
<b>Visual Resources</b>	
- Impacts from ground disturbance, new facilities, enlarged reservoir, and quarry site	- DW will mitigate quarry disturbance by contouring, reclaiming, rock staining, selective plantings, and other methods
<b>Recreation</b>	
- Most recreation sites will be inundated, and the recreation experience may be temporarily impacted from construction - Recreation access will be temporarily restricted or limited during construction. Emergency access to Gross Reservoir will be maintained.	- DW will relocate all inundated recreation facilities in accordance with Articles 416 and 417 of its FERC license
<b>Soils, Air Quality, Noise</b>	
- Impacts to 465 acres of soils related to the expansion of the dam, reservoir and related facilities, which can increase erosion and sedimentation into the reservoir and waterways - Short-term impacts related to construction activities including vehicle exhaust, engine combustion emissions and ground disturbance leading to short-term increases of particulate matter (PM <sub>10</sub> ) and gaseous pollutants (NO <sub>x</sub> , CO, SO <sub>2</sub> , and VOCs) - Short-term, moderate noise impacts related to construction activities, blasting, concrete batch plant, traffic, etc.	- DW will prepare a Stormwater Management Plan and comply with the CDPHE General Permit for Construction Activities - BMPs will address erosion control, stockpiling of materials, dust control, revegetation, materials handling, fuel containment, etc. - DW will obtain and comply with the necessary CDPHE air quality permits - DW will implement confined charge blasting for dam construction to minimize noise - DW will comply with Boulder County noise ordinances
<b>SOUTH BOULDER CREEK and OTHER WATERS OF THE U.S.</b>	
<b>Aquatic Biological Resources</b>	
- Inundation of 1.58 miles (3.53 acres) of streams tributary to the reservoir including South Boulder Creek, Winiger Gulch, Forsythe Gulch, and Forsythe Falls - Minor adverse impact to fish and macroinvertebrates in South Boulder Creek upstream of Gross Reservoir - Minor beneficial impact to fish and macroinvertebrates in South Boulder Creek downstream of Gross Reservoir due to increases in winter flows, reductions in runoff flows and changes in water temperature	- DW will establish a 5,000-AF Environmental Pool in Gross Reservoir to augment flows during low-flow periods benefiting 17 miles of aquatic habitat in South Boulder Creek from the dam to the confluence with Boulder Creek - DW will continue temperature and dissolved oxygen monitoring in South Boulder Creek downstream of the dam per Article 402 of its FERC license
<b>Channel Morphology</b>	
- Negligible to moderate increase in sediment transport and supply due to increase in flow upstream of the reservoir, which may result in localized bed and bank erosion	- DW will continue its monitoring program of South Boulder Creek upstream of the reservoir, and will install protective measures if needed

**Table 11. Summary of Moffat Project Impacts and Proposed Mitigation (continued)**

<b>Project Effects Identified in the EIS</b>	<b>Proposed Mitigation</b>
<b>Recreation</b>	
<u>Upper South Boulder Creek</u> - Beneficial (minor to moderate) impacts on boating due to increased flows - Major impact on whitewater boating due to inundating the Right In My Backyard rapid - Minor impact on the quality of fishing due to a potential reduction in fish habitat  <u>Lower South Boulder Creek</u> - Negligible effect on boating - Minor beneficial effect on fishing due to reduced flows	- DW will establish a 5,000-AF Environmental Pool in Gross Reservoir to augment flows during low-flow periods benefiting 17 miles of aquatic habitat in South Boulder Creek from the dam to the confluence with Boulder Creek (described also under Aquatic Biological Resources)
<b>NORTH FORK SOUTH PLATTE and SOUTH PLATTE RIVERS</b>	
<b>Aquatic Biological Resources</b>	
- Flow changes in the North Fork South Platte River and higher concentrations of copper may have minor adverse impacts on aquatic habitat, brown trout populations, and invertebrates	- DW will provide \$1.5 million for stream habitat improvements in the North Fork South Platte River and/or mainstem South Platte River
<b>Channel Morphology</b>	
- Increased flows in the North Fork South Platte River will continue to cause erosive forces and could result in localized bank instability	- DW will monitor five locations for channel instability - If problems occur, DW will contribute \$250,000 for the design and installation of remediation project(s) in cooperation with CPW and USFS
<b>Threatened and Endangered Species</b>	
- Depletions may affect downstream listed species in the lower Platte River in Nebraska	- DW will comply with the 2013 BO, which requires participation in SPWRAP and the Platte River Recovery Implementation Program
<b>FRASER and WILLIAMS FORK RIVERS</b>	
<b>Water Quality/Temperature</b>	
<u>Fraser River</u> - Ranch Creek could have moderate adverse impacts due to increased frequency of elevated stream temperatures - Fraser River downstream of the town of Fraser could have negligible to minor impacts due to increased frequency of elevated stream temperatures	- DW will monitor stream temperature on Ranch Creek and the Fraser River - If temperature standards are exceeded between July 15 and August 31, DW will bypass up to 250 AF of water

**Table 11. Summary of Moffat Project Impacts and Proposed Mitigation (continued)**

Project Effects Identified in the EIS	Proposed Mitigation
<b>Aquatic Biological Resources</b>	
<u>Fraser River</u> - Minor adverse impacts on fish and invertebrates in upper sections of the Fraser River; negligible to beneficial effects in lower segments  <u>Williams Fork River</u> - Flow reductions will have a negligible effects on fish and macroinvertebrates in the mainstem river - Flow reductions will have minor adverse impacts on fish and invertebrates in some tributaries (i.e., McQueary, Jones, Bobtail and Steelman creeks)	- DW will provide \$750,000 for stream habitat restoration projects in the Fraser and upper Williams Fork rivers
<b>Channel Morphology</b>	
<u>Fraser River Basin</u> - Decreases in spring runoff flows will result in a decrease in sediment transport capacity. Localized sediment deposition is expected to occur; remaining flows are predicted to be high enough to mobilize sediment such that no long-term changes in channel morphology are anticipated; flushing of fine sediments and bed mobilization will continue with the Project - Stream segments downstream of DW diversions with no bypass flows currently experience sediment accumulation and/or vegetative encroachment, which is expected to accelerate	- No mitigation measures are proposed
<b>Recreation</b>	
<u>Fraser River</u> - Stream flow changes may have moderate to major long-term effects on boating; the average number of boating days within optimum flow range in the Fraser Canyon will be reduced	- No mitigation measures are proposed – other flow mitigation commitments may alleviate boating impacts
<b>Threatened and Endangered Species</b>	
- Likely to adversely affect greenback cutthroat trout, a federally-listed threatened species, due to increased entrainment through DW's diversion structures	- DW will comply with the BO to be issued by the USFWS
<b>BLUE RIVER</b>	
<b>Recreation</b>	
- Minor adverse impact on recreational boating and no impact on fishing	- None – other flow mitigation commitments may alleviate boating impacts
<b>COLORADO RIVER</b>	
<b>Water Quality/Temperature</b>	
- Negligible impact on stream temperature	- DW will install two temperature monitoring stations and monitor stream temperature on the Colorado River - If temperature standards are exceeded between July 15 and August 31, DW will bypass up to 250 AF of water

**Table 11. Summary of Moffat Project Impacts and Proposed Mitigation (continued)**

<b>Project Effects Identified in the EIS</b>	<b>Proposed Mitigation</b>
<b>Threatened and Endangered Species</b>	
- Likely to adversely affect Colorado River endangered fish species due to flow depletions	- DW will comply with the 2013 BO, which requires DW to pay a fee to support the Upper Colorado River Endangered Fish Recovery Program

### **Additional Environmental Protections in Grand County**

#### **Temperature**

- If additional temperature response is needed, Denver Water will bypass additional flows at the Ranch Creek, Fraser River and/or Jim Creek diversion(s) when the Moffat Project is diverting
- If response actions are ineffective, Denver Water will contribute \$1 million to LBD to implement projects designed to address stream temperature issues in the Fraser River Basin

#### **Flushing Flows**

- Denver Water will provide flushing flows in 3 out of every 10 years on the Fraser River, St. Louis Creek, Vasquez Creek, and Ranch Creek
- Denver Water will operate and maintain the Fraser River Sediment Pond to reduce sediment loads
- If response actions are ineffective, Denver Water will contribute \$1 million to LBD for project(s) to improve channel stability and sediment transport in the Fraser River Basin

### **Additional Enhancement Efforts in Grand County**

#### **Colorado River Cooperative Agreement**

- Support LBD effort
- Provide \$1 million for flow-related projects in the Wild and Scenic River management program
- Continue minimum bypass flows during droughts (2,000 to 3,000 AF) to maintain aquatic habitats
- Provide funding for forest and watershed health in Grand County
- Provide \$2 million for water quality projects in Grand County

#### **Learning by Doing Cooperative Effort**

- Develop an annual operations plan to maximize environmental benefits
- Provide 1,000 AF/yr in the Fraser River for instream flows
- Provide 1,000 AF/yr in the Williams Fork River for instream flows, with up to 2,500 AF/yr in storage to manage releases
- Provide \$1.25 million for aquatic habitat improvements
- Provide \$2 million for environmental enhancements
- Provide \$1 million for pumping at Windy Gap to Granby Reservoir to improve aquatic habitat below Windy Gap Reservoir

- Develop an Aquatic Resource Monitoring Plan for the Fraser River and Colorado River basins
  - Additional temperature monitoring
  - Additional channel stability and sediment transport evaluation
  - Benthic macroinvertebrate monitoring
  - Riparian and wetland habitat monitoring

#### **Fish and Wildlife Enhancement Plan - Upper Colorado River Habitat Project**

- Provide \$6 million with the Subdistrict to improve aquatic habitat below Windy Gap Reservoir
- Provide in-kind support for the Upper Colorado River Habitat Project
- Provide \$500,000 for adaptive management/maintenance associated with the Upper Colorado River Habitat Project

**Appendix M-2**  
**Operations of the Environmental Pool (for Mitigation Purposes)**  
**at Gross Reservoir as Evaluated by the Corps**





**Appendix M-2**

**Operations of the Environmental Pool (for Mitigation Purposes)  
at Gross Reservoir as Evaluated by the Corps**

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**Table of Contents**

Environmental Pool (for Mitigation Purposes) at Gross Reservoir .....	M2-1
Environmental Pool Modeling Techniques .....	M2-2
Results of the Analysis.....	M2-3
Resource Effects from the Environmental Pool.....	M2-3
References .....	M2-4

**List of Tables**

Table 1	Summary of Hydrologic Changes due to the Gross Reservoir Environmental Pool
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**List of Figures**

Figure 1	Gross Reservoir Storage (af) Average Year
Figure 2	Flow at Eldorado Springs Gage (cfs) Average Year

## **Appendix M-2**

### **Operations of the Environmental Pool (for Mitigation Purposes)**

#### **at Gross Reservoir as Evaluated by the Corps**

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#### **List of Acronyms**

AF	acre-feet
cfs	cubic feet per second
Denver Water	Board of Water Commissioners
FEIS	Final Environmental Impact Statement
GREPOM	Gross Reservoir Environmental Pool Operations Model
Moffat Project or Moffat	Moffat Collection System Project
PACSM	Platte and Colorado Simulation Model

## **Appendix M-2**

### **Operations of the Environmental Pool (for Mitigation Purposes) at Gross Reservoir as Evaluated by the Corps**

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#### **Environmental Pool (for Mitigation Purposes) at Gross Reservoir**

Using existing collection infrastructure, water from the Fraser and Williams Fork river basins, and South Boulder Creek, would be diverted during average and wet years and delivered to an enlarged Gross Reservoir. In order to firm this water supply and provide 18,000 acre-feet (AF) of new yield per year, the existing Gross Reservoir would be expanded from 41,811 to 113,811 AF to provide an additional 72,000 AF of storage capacity. In addition, Denver Water proposes to create an additional 5,000 AF of storage in the reservoir in order to store water that would be used in flow releases to enhance aquatic habitat in South Boulder Creek. This additional storage is identified as the Environmental Pool throughout the Moffat Collection System Project (Moffat Project or Project) Final Environmental Impact Statement (FEIS).

The Environmental Pool would be filled with water provided by the cities of Boulder and Lafayette and released for environmental flows. None of the Board of Water Commissioners' (Denver Water's) existing or future water supply would be stored as the Environmental Pool. To accommodate the additional 5,000 AF, the dam would need to be raised approximately 6 feet, beyond the proposed expansion of 7,400 feet, to an elevation of 7,406 feet. Water stored as the Environmental Pool would be released when needed to meet target instream flows on South Boulder Creek downstream of the South Boulder Diversion Canal. The operations and hydrologic effects of the Environmental Pool were analyzed by the City of Boulder as described in the memorandum, Gross Reservoir Environmental Pool Operations Model (GREPOM) (AMEC 2009), which contains a complete description of the techniques and assumptions used by the City of Boulder in their analysis.

The Environmental Pool (for mitigation purposes) would generally be filled from April through September by exchanging water owned by the cities of Boulder and Lafayette, rather than by water from the Moffat Collection System, which includes water diverted from the West Slope and water diverted under Denver Water's Gross Reservoir storage right. Subject to water availability in the Environmental Pool, the City of Boulder considered the following instream flow targets.

## Appendix M-2

### Operations of the Environmental Pool (for Mitigation Purposes) at Gross Reservoir as Evaluated by the Corps

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Stream Reach	Normal Year <sup>1</sup> (cfs)		Dry Year <sup>2</sup> (cfs)	
	Winter (Oct-Apr)	Summer (May-Sep)	Winter (Oct-Apr)	Summer (May-Sep)
Eldorado Gage to South Boulder Road	6.5 <sup>3</sup>	10 <sup>4</sup>	5 <sup>6</sup>	7 <sup>6</sup>
South Boulder Road to East Boulder Ditch	2.5 <sup>5</sup>	4 <sup>5</sup>	1.5 <sup>6</sup>	2 <sup>6</sup>
East Boulder Ditch to Mouth	2.5 <sup>5</sup>	4 <sup>5</sup>	1.5 <sup>6</sup>	2 <sup>6</sup>

Source: AMEC, 2009.

Notes:

<sup>1</sup> Diversions into the Environmental Pool were constrained by Normal Year instream flow targets, including the Colorado Water Conservation Board's (CWCB) South Boulder Creek instream flow right of 15 cubic feet per second (cfs) during May-September from the outlet of Gross Reservoir to South Boulder Creek Road.

<sup>2</sup> Defined as any year when the Environmental Pool is less than 40 percent full at the end of June.

<sup>3</sup> Based upon Colorado Parks and Wildlife's (CPW's) R2 Cross analyses of minimum fall/winter season flow needs for that reach.

<sup>4</sup> The CWCB's instream flow right during May-September is 15 cfs; however, the Gross Reservoir Environmental Pool Operations Model was operated to release water from the Environmental Pool to meet an instream flow target of 10 cfs. The CWCB's 15 cfs instream flow right acted as a constraint for diversions into the Environmental Pool.

<sup>5</sup> Based upon the CPW's R2 Cross analyses for that reach.

<sup>6</sup> Dry Year targets were selected using professional judgment.

### Environmental Pool Modeling Techniques

The City of Boulder developed a daily model for the period from October 1, 1994 through September 30, 2007 titled GREPOM to simulate operations of the Environmental Pool.

Data generated from GREPOM was combined with data from the Platte and Colorado Simulation Model (PACSM) for the Proposed Action (also referred to as Alternative 1a) to determine hydrologic changes to Alternative 1a due to the Environmental Pool. Daily net outflow and storage contents for the Environmental Pool simulated using GREPOM were combined with PACSM results as follows. PACSM data for Alternative 1a was used to calculate average monthly values for average, wet and dry conditions as described in Section 4.1 of the Moffat Project FEIS. These average, wet and dry monthly values were added to GREPOM results using the City of Boulder's definitions for average, wet and dry conditions for the 1995-2007 study period. Calculations were performed as follows:

1. For Gross Reservoir Contents, GREPOM results were added to PACSM results.
2. For Gross Reservoir Outflow, the "net" of GREPOM's inflow and outflow from the Environmental Pool was added to PACSM's total Gross Reservoir outflow.
3. For South Boulder Creek at the Eldorado Springs gage, the "net" of GREPOM's inflow and outflow from the Environmental Pool was added to PACSM's results.

The Environmental Pool essentially retimes flows in South Boulder Creek below Gross Reservoir and below the South Boulder Diversion Canal. During mid-April through June, flows would decrease at times when exchange potential and storage capacity exists. From July through March, flows would increase at times that releases are made from the Environmental Pool (for mitigation purposes) to meet instream flow targets.

## **Appendix M-2**

### **Operations of the Environmental Pool (for Mitigation Purposes) at Gross Reservoir as Evaluated by the Corps**

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#### **Results of the Analysis**

Table 1 summarizes average monthly flows below Gross Reservoir and near the South Boulder Diversion Canal at the Eldorado Springs gage, and storage contents in Gross Reservoir for average, wet and dry conditions for Alternative 1a, the Environmental Pool, and the combination of Alternative 1a and the Environmental Pool. Average monthly contents in the Environmental Pool would be greatest at the end of June at 3,630 AF and lowest at the end of March at 2,320 AF, as shown in Figure 1. In dry years, the Environmental Pool would be drawn on more heavily to meet instream flow targets, down to a minimum of 1,900 AF on average at the end of March, and drawn down completely in severe droughts like 2002-2003. However, in wet years, monthly contents in the Environmental Pool would be higher due to the exchange potential and because less water would need to be released to meet instream flow targets.

On average, outflow from Gross Reservoir and flows at the Eldorado Springs gage would decrease from about mid-April through June when water would typically be exchanged upstream into the Environmental Pool. Flows at those locations would increase on average from July through March as water is released to meet instream flow targets. Figure 2 shows the average daily flow in South Boulder Creek at the Eldorado Springs gage under Alternative 1a and with the Environmental Pool. On average, the Environmental Pool would decrease flows up to 12 cfs in May and increase flows up to 4 cfs from December through March, as shown in Table 1. In a wet year, flows would decrease up to 14 cfs on average in May and increase up to 4 cfs from November through March. Flows would decrease more in wet years because there would be more exchange potential to store water in the Environmental Pool. In a dry year, flows would decrease up to 4 cfs on average in May and increase up to 4 cfs in November, December, February, and March. The maximum decrease in flow due to the Environmental Pool was estimated to be 75 cfs, which was the limit assumed for the rate of exchange, whereas the maximum increase in flow was approximately 7 cfs. During the 1995-2007 study period used for the GREPOM, 75 cfs was exchanged into the Environmental Pool account a total of 44 days in 9 years out of the 13-year study period. The maximum number of days 75 cfs was exchanged into the additional Environmental Pool account was 18 days. Typically, the maximum exchange of 75 cfs only occurs for a few days during wet and above average years during peak runoff in late May to early June.

#### **Resource Effects from the Environmental Pool**

The environmental effects discussed in Chapter 5 of the Moffat Project FEIS for surface water correspond with the 72,000-AF enlargement whereas the operations and effects associated with the 5,000-AF Environmental Pool, as independently evaluated by the U.S. Army Corps of Engineers (Corps), are discussed here. Additional analyses conducted by the Corps for recreation and aquatic biological resources associated with the Environmental Pool are presented below. The environmental effects of a 77,000-AF expansion are expected to be similar to the 72,000-AF expansion.

## **Appendix M-2**

### **Operations of the Environmental Pool (for Mitigation Purposes) at Gross Reservoir as Evaluated by the Corps**

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#### **Recreation**

Overall, the Environmental Pool would have a minor adverse impact to recreation, specifically kayaking, on South Boulder Creek, as a result of reduced flows. Flows are projected to decrease by as much as 12 cfs at both the Gross Reservoir Outflow and the Eldorado Canyon gage in May with the Environmental Pool. May is a primary use period for kayaking along South Boulder Creek and the optimum flow range for kayaking is 150 to 300 cfs. A reduction of 12 cfs at the Eldorado Canyon gage would reduce flows from 148 cfs under the Proposed Action to 136 cfs with the Environmental Pool. This would reduce flows further out of the optimum range for kayaking. No other recreational impacts, adverse or beneficial, are expected as a result of the Environmental Pool at Gross Reservoir.

#### **Aquatic Biological Resources**

The Moffat Project hydrology would provide moderate beneficial impacts to the aquatic life of Gross Reservoir due to its larger size and to the section of South Boulder Creek downstream of the reservoir to Denver Water's diversion point due to much higher (up to 88 cfs) winter flows. The Environmental Pool would provide additional beneficial impacts to the aquatic organisms in Gross Reservoir. The additional storage would provide more area and volume to sustain these organisms, thus providing more habitat. In South Boulder Creek downstream of Denver Water's diversion, the changes in flow with the Environmental Pool would also provide beneficial impacts to aquatic life. The Environmental Pool would slightly reduce peak runoff flows and slightly increase low winter flows. Both of these changes in the stream hydrology are common mechanisms for increasing the habitat availability for aquatic organisms in streams. Decreasing high flows provides a less stressful environment for fish and benthic invertebrates by reducing water velocity and the chance that these organisms may be flushed from preferred habitat locations. Increasing flows in winter provides for greater depths and greater area for supporting aquatic organisms through the stressful low flow season. The results of the flow changes with the Environmental Pool may result in greater abundance of aquatic organisms in Gross Reservoir and in South Boulder Creek downstream of Denver Water's diversion.

#### **References**

AMEC Earth & Environmental (AMEC). 2009. Memorandum to Steve Schmitzer and Travis Bray, Denver Water, from Lee Rozaklis and Courtney Peppler, AMEC, Regarding Gross Reservoir Environmental Pool Operations Model. June 14.

## Appendix M-2

# Operations of the Environmental Pool (for Mitigation Purposes) at Gross Reservoir as Evaluated by the Corps

Table 1: Summary of Hydrologic Changes due to the Gross Reservoir Environmental Pool														
Gross Reservoir End-of-Month Contents (acre-feet)														
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average
average	Alt 1a	93,715	90,124	85,863	81,393	77,444	73,174	69,472	81,240	102,057	102,457	99,506	97,422	87,822
average	Env. Pool	3,405	3,200	2,961	2,743	2,538	2,321	2,386	3,107	3,632	3,560	3,406	3,303	3,047
average	Total	97,120	93,324	88,824	84,135	79,982	75,495	71,858	84,347	105,688	106,016	102,912	100,725	90,869
wet	Alt 1a	100,732	97,611	93,838	89,765	86,149	82,329	80,469	99,798	113,738	112,713	109,095	106,667	97,742
wet	Env. Pool	4,623	4,408	4,148	3,909	3,686	3,457	3,566	4,446	4,984	4,867	4,716	4,614	4,285
wet	Total	105,355	102,019	97,986	93,674	89,835	85,785	84,035	104,244	118,722	117,580	113,810	111,281	102,027
dry	Alt 1a	97,536	93,901	89,583	85,062	81,129	76,922	73,489	77,317	90,879	88,446	85,065	81,688	85,085
dry	Env. Pool	3,024	2,802	2,553	2,358	2,131	1,897	2,016	2,268	2,433	2,328	2,180	2,097	2,341
dry	Total	100,560	96,703	92,136	87,421	83,260	78,819	75,504	79,585	93,312	90,774	87,244	83,785	87,425
Gross Reservoir Outflow (cfs)														
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average
average	Alt 1a	119	97	99	98	95	96	132	221	398	349	209	132	171
average	Env. Pool	1	3	4	4	4	4	(1)	(12)	(9)	1	2	2	0
average	Total	120	101	103	102	99	100	131	209	389	350	212	134	171
wet	Alt 1a	125	96	97	97	93	91	94	159	412	407	261	172	176
wet	Env. Pool	1	4	4	4	4	4	(2)	(14)	(9)	2	2	2	0
wet	Total	126	99	102	101	97	95	93	145	403	409	263	174	176
dry	Alt 1a	109	91	93	93	89	88	112	211	300	198	160	129	140
dry	Env. Pool	1	4	4	3	4	4	(2)	(4)	(3)	2	2	1	1
dry	Total	110	94	97	96	93	92	110	207	297	200	162	131	141
Notes: The flow shown for the Environmental Pool is the change in outflow from Gross Reservoir due to storage in and releases from the Environmental Pool.														
The total Gross Reservoir outflow is the sum of flows for Alt 1a and the Environmental Pool.														
Flow at Eldorado Springs Gage (cfs)														
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average
average	Alt 1a	21	16	13	10	11	17	44	148	266	130	49	26	63
average	Total	22	19	16	14	15	20	43	136	257	131	51	27	63
wet	Alt 1a	26	21	16	13	12	19	45	142	302	188	67	31	74
wet	Total	27	25	20	17	16	23	43	127	293	190	70	33	74
dry	Alt 1a	15	12	9	8	8	11	30	106	183	52	28	22	40
dry	Total	16	15	13	11	12	15	28	102	181	54	31	24	42
Notes:														
The total flow at the Eldorado Springs gage equals the flow under Alt 1a plus the change in outflow from Gross Reservoir due to the Environmental Pool.														

## Appendix M-2

### Operations of the Environmental Pool (for Mitigation Purposes) at Gross Reservoir as Evaluated by the Corps

Figure 1: Gross Reservoir Storage (af)  
Average Year

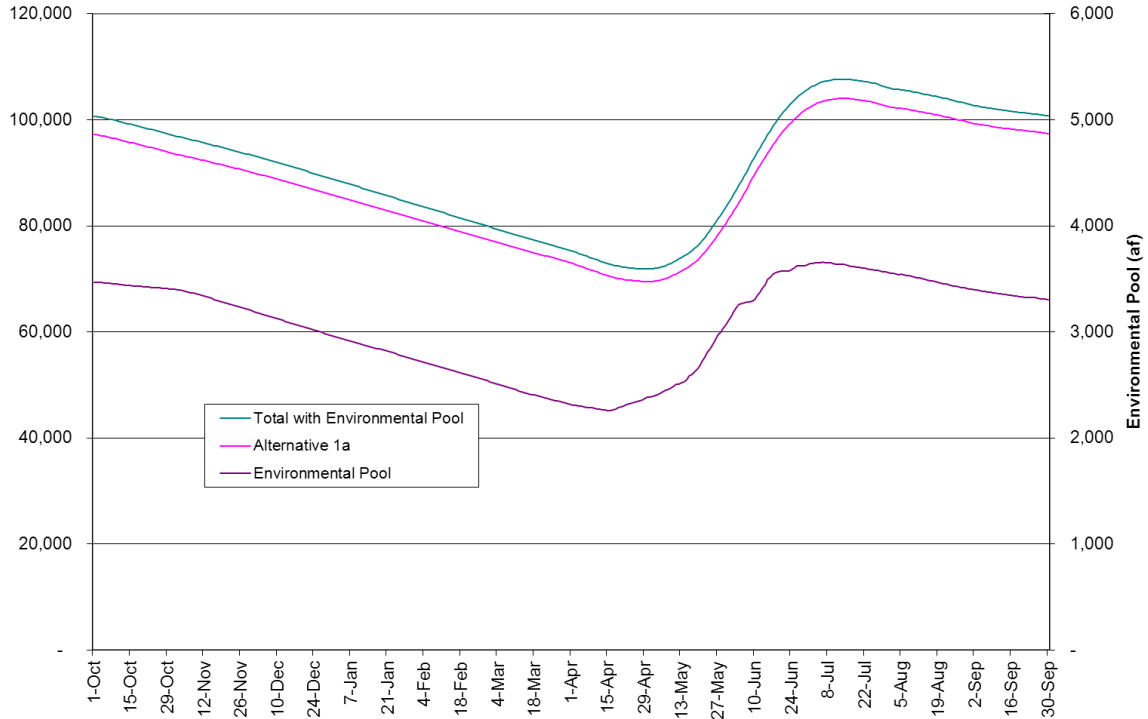
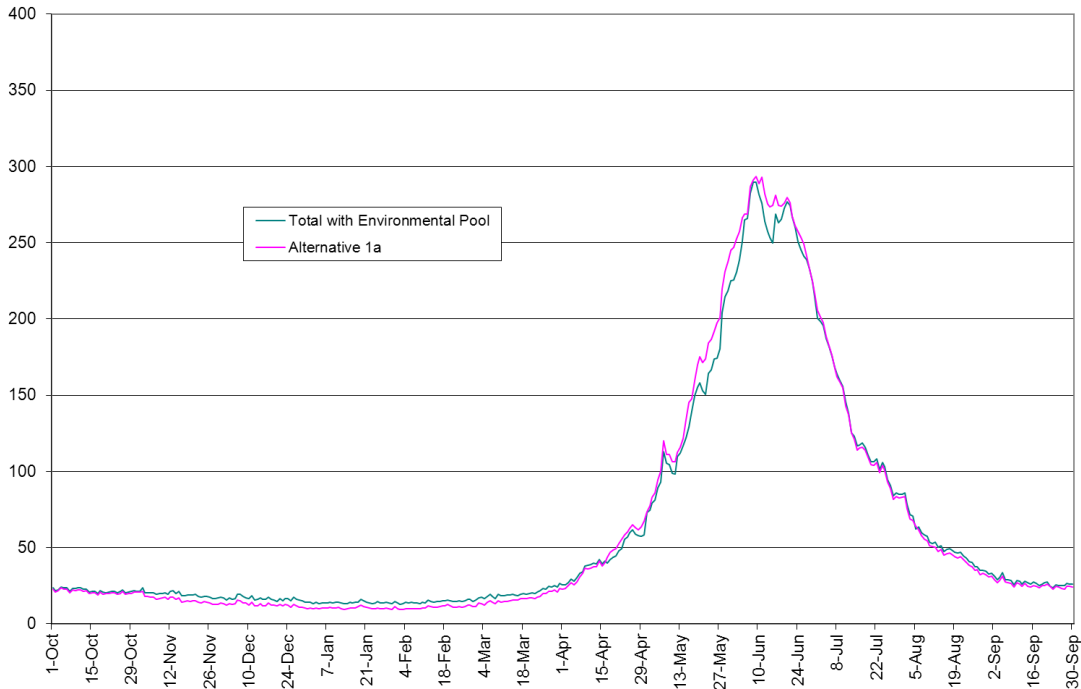


Figure 2: Flow at Eldorado Springs Gage (cfs)  
Average Year





**Appendix M-3**  
**Moffat Collection System Project, Fish and Wildlife Mitigation Plan, Prepared for**  
**the Colorado Wildlife Commission, by Denver Water, June 9, 2011**



# **Moffat Collection System Project Fish and Wildlife Mitigation Plan**

Prepared for:  
**The Colorado Wildlife Commission**  
In accordance with CRS 37-60-122.2

Prepared by:  
**Denver Water**

**June 9, 2011**



## **Table of Contents**

### **EXECUTIVE SUMMARY**

#### **1.0 INTRODUCTION**

- 1.1. Project Overview
- 1.2. Regulatory Process
- 1.3. Fish and Wildlife Mitigation Plan Stakeholders
- 1.4. Concurrent and Related Activities

#### **2.0 AVOIDANCE AND MINIMIZATION**

#### **3.0 FISH AND WILDLIFE MITIGATION**

- 3.1. West Slope
  - 3.1.1. Fraser and Upper Williams Fork Rivers
  - 3.1.2. Colorado River
  - 3.1.3. Blue River
- 3.2. East Slope
  - 3.2.1. Gross Reservoir
  - 3.2.2. South Boulder Creek
  - 3.2.3. North Fork South Platte River
  - 3.2.4. South Platte River

#### **4.0 COST AND SCHEDULE**

#### **5.0 CONCLUSION**

### **Tables**

- |   |   |
|---|---|
| 1 | Proposed Mitigation – Fraser River                  |
| 2 | Proposed Mitigation – Williams Fork River           |
| 3 | Proposed Mitigation – Colorado River                |
| 4 | Proposed Mitigation – Gross Reservoir               |
| 5 | Proposed Mitigation – South Boulder Creek           |
| 6 | Proposed Mitigation – North Fork South Platte River |
| 7 | Proposed Mitigation – South Platte River            |

### **Figure**

Water Collection System



## EXECUTIVE SUMMARY

The City and County of Denver, acting by and through its Board of Water Commissioners (Denver Water) is proposing to construct the Moffat Collection System Project (Moffat Project), a project designed to provide 18,000 acre-feet (AF) per year of new water supply to Denver Water's customers. Denver Water proposes to enlarge its existing 42,000-AF Gross Reservoir, which is located in Boulder County, Colorado approximately 35 miles northwest of Denver and 6 miles southwest of the city of Boulder. The purpose of this Fish and Wildlife Mitigation Plan (FWMP) for the Moffat Project is to comply with the requirements of Colorado state law (CRS 37-60-122.2), as implemented by the procedural rules for the Colorado Wildlife Commission.

The Moffat Project must comply with the National Environmental Policy Act (NEPA) by preparing an Environmental Impact Statement (EIS) and the Clean Water Act by applying for a Section 404 Permit from the U.S. Army Corps of Engineers (Corps). Denver Water will also apply to the Federal Energy Regulatory Commission (FERC) to amend its hydropower license for the Gross Reservoir hydroelectric facility.

Denver Water is committed to comply with all mitigation measures in the FWMP, the Corps' Record of Decision and Section 404 Permit, and the FERC license.

Denver Water is also submitting a separate *Fish and Wildlife Enhancement Plan* (*Enhancement Plan*) in cooperation with the Municipal Subdistrict of the Northern Colorado Water Conservancy District (Subdistrict), proposing to enhance fish and wildlife resources over and above current conditions in the Colorado River below the Windy Gap diversion.

Since the Subdistrict is seeking approval through the state and federal regulatory processes for the WGFP concurrent with Denver Water's Moffat Project, both Denver Water and the Subdistrict have agreed to cooperate in a process of simultaneous development of mitigation and enhancement plans pursuant to CRS 37-60-122.2.

In addition to the required mitigation measures in the FWMP and voluntary enhancements in the *Enhancement Plan*, Denver Water and Grand County have reached a proposed agreement to provide environmental enhancements to benefit the aquatic environment in the Fraser, Williams Fork and Upper Colorado rivers, including participation in the cooperative effort called Learning by Doing (LBD).

Denver Water will mitigate for environmental impacts of the Moffat Project through the measures identified in this FWMP. Additionally, Denver Water is proposing to improve the aquatic and riparian habitat of the Colorado River in Grand County with measures identified in the separate *Enhancement Plan* and the LBD Cooperative Effort. The FWMP, *Enhancement Plan*, and LBD Cooperative Effort are conditioned upon Denver Water improving the reliability of the Moffat Collection System water supplies through successful permitting of the Moffat Project. The LBD Cooperative Effort is only being offered to enhance existing conditions in Grand County and is not intended to reduce the amount of mitigation the U.S. Army Corps of Engineers (Corps) will require to mitigate the identified impacts of the Moffat Project.





## **1.0 INTRODUCTION**

### **1.1 Project Overview**

The City and County of Denver, acting by and through its Board of Water Commissioners (Denver Water) is proposing to construct the Moffat Collection System Project (Moffat Project), a water supply project designed to provide 18,000 acre-feet (AF) per year of new water supply to Denver Water's customers. Denver Water proposes to enlarge its existing 42,000-AF Gross Reservoir, which is located in Boulder County, Colorado approximately 35 miles northwest of Denver and 6 miles southwest of the city of Boulder. Using existing infrastructure, water from the Fraser River, Williams Fork River, and South Boulder Creek would be diverted and delivered to Gross Reservoir during average-to-wet years via the Moffat Tunnel and South Boulder Creek. In order to provide 18,000 AF of new water supply, Gross Dam would be raised 125 feet to provide an additional 72,000 AF of storage capacity. The surface area of the reservoir would increase by 400 acres from 418 to 818 acres. Existing facilities, including the South Boulder Diversion Canal and Conduits 16 and 22, would be used to deliver water from the enlarged Gross Reservoir to the Moffat Water Treatment Plant and raw water customers.

In 2003, Denver Water notified the Corps of their intent to apply for a permit, pursuant to Section 404 of the Clean Water Act (Section 404 Permit), to place fill in jurisdictional waters of the U.S., including wetlands for a water supply project. The Corps determined that an Environmental Impact Statement (EIS) was needed to evaluate the direct and indirect effects of a range of reasonable alternatives. The Corps published their Draft EIS on the Moffat Project in October 2009.

The Draft EIS identified potential environmental impacts of the Moffat Project, including impacts to fish and wildlife resources. Pursuant to CRS 37-60-122.2(1), Denver Water prepared this Fish and Wildlife Mitigation Plan (FWMP) in consultation with the Colorado Division of Wildlife (CDOW) to mitigate fish and wildlife impacts from the Moffat Project identified in the Corps' Draft EIS. If, upon release of the Final EIS for the Moffat Project, impacts to fish and wildlife resources are identified that were not described in the Draft EIS, Denver Water will propose additional mitigation, if needed, for these new impacts. The additional mitigation will be developed in cooperation with the CDOW prior to submittal to the Corp for its consideration as a Section 404 permit condition for the Moffat Project. Denver Water will also reserve funds as an "insurance policy" to mitigate any new Moffat Project impacts to fish and wildlife resources identified in the Final EIS and required by the Corps.

In addition, to address existing stream conditions, Denver Water is submitting to the Colorado Wildlife Commission, pursuant to regulations implementing CRS 37-60-122.2(2), a proposal for enhancing fish and wildlife resources over and above the levels existing without the Moffat Project. Denver Water is also providing a copy of the proposed LBD Cooperative Effort agreement as an information piece for the Wildlife Commission. For an understanding of the environmental enhancements Denver Water is proposing, refer to the document titled, "*Moffat Collection System Project Fish and*

*Wildlife Enhancement Plan*” (*Enhancement Plan*), which includes a copy of the proposed LBD Cooperative Effort agreement. The *Enhancement Plan* is being submitted concurrently with the FWMP.

## **1.2 Regulatory Process**

The Moffat Project is subject to numerous permits and approvals that require mitigation to offset environmental effects attributable to the proposed Gross Reservoir enlargement. Some of the key regulatory review processes evaluating fish and wildlife resources include the following:

*NEPA/ Section 404:* The Corps is the lead federal agency preparing the EIS in accordance with the National Environmental Policy Act (NEPA) and the Corps’ regulations for implementing NEPA (33 CFR 325, Appendix B). The U.S. Environmental Protection Agency (USEPA) and Federal Energy Regulatory Commission (FERC) are cooperating agencies, and Grand County is a consulting agency, in the EIS process. The Corps issued the Draft EIS in October 2009 for an extended agency and public comment period of 138 days. The Corps is currently in the process of responding to comments received. The Final EIS and Record of Decision are anticipated to be released by the Corps near the end of 2011. If the Corps issues a Section 404 permit, it will contain special conditions and mitigation measures to offset environmental effects resulting from unavoidable impacts to aquatic resources as well as special conditions to satisfy public interests.

*FERC Hydropower License Amendment:* Because Gross Reservoir is a FERC-licensed hydroelectric facility, Denver Water will apply to FERC to amend its hydropower license for Gross Reservoir. A Draft FERC Hydropower License Amendment Application was submitted by Denver Water to stakeholders and FERC in October 2009 for public comment. A final amendment application will be submitted to FERC following the Corps’ release of the Final EIS. In the amended license, FERC may impose license conditions for environmental protection within the Gross Reservoir project area. In addition, license conditions may be imposed by the U.S. Forest Service (USFS) for the protection of USFS lands under Section 4e of the Federal Power Act. The following is a list of license conditions (by associated license article number) that Denver Water currently complies with under its existing FERC license:

- 401: Erosion Control
- 402: Dissolved Oxygen (DO) and Water Temperature Monitoring of South Boulder Creek below Hydroelectric Facility
- 403/404: Ramping Rate Compliance
- 405: Rehabilitation and Restoration Plan (USFS Condition 104)
- 406: Weed Management Plan (USFS Conditions 107 and 108)
- 407: Forest Management Plan
- 410: Plan to Protect Rare and Sensitive Species in the Project Boundary
- 411: Participation in the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin

- 412/413: Participation in the Platte River Endangered Species Recovery Implementation Program
- 414: Visual Resource Protection Plan (USFS Condition 105)
- 415: Archaeological or Historic Sites
- 416/417: Recreation Management Plan (USFS Condition 106)
- 110: Channel Instability and Bank Erosion (USFS Condition 110)

Denver Water will prepare specifications for drainage, erosion control, revegetation, etc. as part of the dam construction plan approval with FERC.

USFWS Section 7 Consultation: The Corps initiated consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7(a) of the Endangered Species Act regarding effects of the Moffat Project on federally listed species and/or designated critical habitat. The USFWS issued a Biological Opinion on July 31, 2009 and determined that proposed depletions to the Colorado River and Platte River would be covered under Denver Water's existing Recovery Agreement on the Colorado River and continued participation in the South Platte Water-Related Activities Program, Inc. (SPWRAP), respectively. In 2010, based on a review of the Draft EIS, the USFWS recommended that the Corps reinstate Section 7 consultation for the Moffat Project and amend the Biological Assessment to address the greenback lineage populations of cutthroat trout within the Project Area.

State FWMP: CRS 37-60-122.2 requires CDOW and Colorado Water Conservation Board (CWCB) review and input on mitigation for fish and wildlife impacts resulting from a federally approved water project. The rules at Section 1604B. instruct the Wildlife Commission to ensure that "the mitigation plan is economically reasonable and reflects a balance between protecting the fish and wildlife resources and the need to develop the state's water resources." Although the procedures for CRS 37-60-122.2 do not require public review and input, Denver Water and CDOW have been involved in extensive efforts to allow for public participation. To date, the Wildlife Commission has provided the following public meetings to solicit input on the potential impacts and mitigation for the Moffat Project:

- Wildlife Commission Workshop, December 9, 2010, Colorado Springs – CDOW presented the potential fish and wildlife impacts of the Moffat Project
- Wildlife Commission Public Meetings ("1313" Meetings), January 18, 2011 in Granby and January 20, 2011 in Boulder – Wildlife Commissioners solicited public comment on the potential fish and wildlife impacts of the Moffat Project
- Public Comment Period on Draft Enhancement and Mitigation Plans, Feb. 10-24, 2011 – CDOW invited public review and comment on the February 9<sup>th</sup> draft plans. The input was considered by CDOW, Denver Water and the Subdistrict in preparing the April 7<sup>th</sup> plans.
- Wildlife Commission Meeting, March 10, 2011 – Members of the public provided comments on the February 9<sup>th</sup> draft plans and review process.
- Wildlife Commission Meeting, May 6, 2011 – Members of the public provided comments on the April 7<sup>th</sup> plans submitted to the Wildlife Commission.

The FWMP will be reviewed by the Wildlife Commission to ensure that the state's fish and wildlife resources affected by the proposed water project are reasonably protected.

*State Fish and Wildlife Enhancement Plan:* CRS 37-60-122.2(2) makes a specific distinction between mitigation of impacts caused by the proposed project, and enhancing fish and wildlife resources over and above current conditions. This distinction is further defined in the Procedural Rules for the Wildlife Commission (Chapter 16), and clarified in a memorandum dated December 9, 2010 to the Director of the CDOW and the Wildlife Commission from the First Assistant Attorney General, Natural Resources and Environment Section. Accordingly, this FWMP includes mitigation measures to address the impacts that have been identified in the NEPA process for the proposed project. Denver Water has also prepared a separate *Enhancement Plan*, in accordance with CRS 37-60-122.2(2) to address issues raised by CDOW and other stakeholders regarding the current condition of the aquatic environment in the Colorado River, which includes proposed enhancement measures to enhance fish and wildlife resources over and above levels existing without the Moffat Project.

The Wildlife Commission has provided the following public meetings to solicit input on enhancement suggestions:

- Stakeholder Workshops, January 24-25, 2011, Winter Park – CDOW solicited input on options for fixing the upper Colorado River between Windy Gap and the Kemp-Breeze State Wildlife Area to ensure a functioning river that supports fish and wildlife resources given anticipated future flows.
- Public Comment Period on Draft Enhancement and Mitigation Plans, Feb. 10-24, 2011 – CDOW invited public review and comment on the draft plans. The input was reviewed by CDOW, Denver Water and the Subdistrict while preparing the April 7<sup>th</sup> plans.
- Wildlife Commission Meeting, March 10, 2011 – Members of the public provided comments on the February 9<sup>th</sup> draft plans and review process.
- Wildlife Commission Meeting, May 6, 2011 – Members of the public provided comments on the April 7<sup>th</sup> plans submitted to the Wildlife Commission on April 7, 2011.

### **1.3 Fish and Wildlife Mitigation Plan Stakeholders**

Even before the public participation coordinated by the CDOW, Denver Water has been consulting and conferring with a broad range of federal and state agencies, as well as local governments and environmental groups, to solicit input on appropriate mitigation for the impacts identified in the Moffat Project Draft EIS. Meetings with these entities started in 2008 when Denver Water prepared the applicant's proposed mitigation plan for the Draft EIS. To date, these entities include:

- Federal: Corps, USEPA, FERC, USFS, and USFWS
- State: CDOW and Colorado Department of Public Health and Environment (CDPHE)
- Local: Grand County, Boulder County, cities of Boulder and Lafayette, and Town of Hot Sulphur Springs
- Non-governmental organizations: Trout Unlimited, and landowners along the upper Colorado River and in the Fraser River basin

#### **1.4 Concurrent and Related Activities**

##### **Windy Gap Firing Project**

The Windy Gap Firing Project (WGFP) is a proposed water supply project that would provide more reliable water deliveries to Front Range and West Slope communities and industries. The Municipal Subdistrict, Northern Colorado Water Conservancy District, acting by and through the WGFP Water Activity Enterprise (Subdistrict) is seeking to construct the project on behalf of the 13 WGFP Participants. Project Participants include the City and County of Broomfield, the towns of Erie and Superior, the cities of Evans, Fort Lupton, Greeley, Lafayette, Longmont, Louisville, Loveland, Little Thompson Water District, Central Weld County Water District, and the Platte River Power Authority.

The proposed WGFP is to add water storage and related facilities to the existing Windy Gap operations capable of delivering a firm annual yield of about 30,000 AF to Project Participants. The Subdistrict's Proposed Action is the construction of Chimney Hollow Reservoir to store Windy Gap Project water. The WGFP Draft EIS was issued by the U.S. Bureau of Reclamation in 2008.

The Moffat Project would increase diversions from the Fraser River Basin upstream of the Windy Gap Project diversion site on the Colorado River and would affect the availability of water for the WGFP. Diversions for the WGFP and Moffat Project would result in changes to flows in the Colorado River below the Windy Gap dam. Denver Water and the Subdistrict have agreed to cooperate with each other and with the Colorado Department of Natural Resources (DNR) and CDOW in concurrent development of the mitigation plans required under CRS 37-60-122.2 for the two projects. They will jointly develop stream temperature monitoring stations as mitigation (refer to Section 3.1.2 of this FWMP). Additionally, Denver Water and the Subdistrict have proposed enhancements with significant resources and funding to improve current conditions in the river. (Refer to the Enhancement Plans prepared by Denver Water and the Subdistrict, which include a discussion of the LBD Cooperative Effort.)

## **2.0 AVOIDANCE AND MINIMIZATION**

The Corps conducted a detailed alternatives analysis, beginning with over 300 alternatives, to determine the range of reasonable alternatives to be analyzed in the EIS to avoid and minimize environmental impacts. The Applicant's preferred alternative to enlarge Gross Reservoir by 72,000 AF has been designed to avoid or minimize direct effects to wetlands and other waters of the U.S. to those that are unavoidable due to dam construction and reservoir inundation. As part of the federal and state permits and approvals, Denver Water will implement a variety of best management practices (BMPs) during and following construction to reduce erosion, protect water quality, suppress dust and noise, revegetate temporarily disturbed areas, and protect or avoid important wildlife habitat. Some of these environmental permits and approvals with BMPs and environmental protection measures include, among others:

- Migratory Bird Treaty Act Compliance
- CDPHE Fugitive Dust Control Plan
- CDPHE Stormwater Management Plan
- CDPHE Section 401 Water Quality Certification

The CDOW has also developed BMPs for the oil and gas industry to minimize adverse impacts to wildlife resources. Denver Water will develop appropriate BMPs when preparing final design and construction plans, and will consult with CDOW to avoid or minimize impacts on wildlife resources.

### 3.0 FISH AND WILDLIFE MITIGATION

Denver Water and CDOW have worked together, with input from numerous stakeholders, to ensure reasonable mitigation measures are recommended to offset the impacts to fish and wildlife resources identified in the Draft EIS for the Moffat Project. Tables 1- 7 present the proposed impacts of the project identified in the Moffat Project Draft EIS, the proposed mitigation measure and the agency responsible for ensuring compliance with the measure.

Denver Water's collection system is comprised of two major systems: the North System (also known as the Moffat Collection System) and the South System. Refer to the attached figure. The two collection systems are geographically distinct and are not physically connected. Operation of the Moffat Project would affect operations, diversion and stream flow regimes in both of Denver Water's collection systems. Of the 18,000 AF of new water supply to be provided by the Moffat Project, the approximate quantities of water that would be diverted annually from the following river systems are as follows:

- |   |           |
|---|-----------|
| • Moffat System (Fraser and Williams Fork rivers) | 10,000 AF |
| • Blue River                                      | 5,000 AF  |
| • South Platte River                              | 2,000 AF  |
| • South Boulder Creek                             | 1,000 AF  |

Under its existing water rights, Denver Water would increase diversions primarily during average and wet years during the runoff months of May, June and July. There would be no additional diversions in dry years because Denver Water already diverts the maximum amount physically and legally available.

The discussion of impacts and mitigation measures are organized as follow:

- West Slope
  - Fraser and Williams Fork rivers
  - Upper Colorado River
  - Blue River
- East Slope
  - Gross Reservoir
  - South Boulder Creek
  - North Fork South Platte River
  - South Platte River



### **3.1 West Slope**

#### **3.1.1 Fraser and Upper Williams Fork Rivers**

Operation of the Moffat Project would result in additional diversions in the Fraser River, upper Williams Fork River, and their tributaries. Flows would decrease in average and wet years due to the additional diversions by the Moffat Project. These additional diversions would be concentrated during the runoff months of May, June, and July and from September through April flow changes would be 1 cfs or less. During dry years, there would be no additional diversions. The Draft EIS determined that reductions in flow during runoff could decrease aquatic habitat availability in the Fraser River basin and the four headwater tributaries of the Williams Fork River: Steeleman, Bobtail, Jones and McQueary creeks. The reductions in flow could also result in increasing frequency of approaching or exceeding stream temperature standards at some locations. Temperatures exceeding the standards have occurred in the Fraser River and Ranch Creek in July and August based on data collected by the Grand County Water Information Network (GCWIN) in 2007 and 2008.

Tables 1 and 2 present the impacts and mitigation for the Fraser River and Williams Fork River, respectively.

#### ***Mitigation - Colorado River and Greenback Cutthroat Trout Habitat Improvements***

One of CDOW's goals for West Slope headwaters is to reestablish a viable fishery for Colorado River cutthroat trout, a state species of special concern and Greenback cutthroat trout, a federally listed threatened species. The CDOW, USFWS and USFS are all signatories to a Conservation Agreement to reduce threats to Colorado River cutthroat trout, to stabilize or enhance its populations, and to maintain its ecosystems. To partially compensate for reduced flows and subsequent potential decrease in aquatic habitat in the Fraser and Williams Fork rivers and tributaries, Denver Water is proposing to construct new habitat for the Colorado River cutthroat trout and Greenback cutthroat trout. CDOW will select a headwater stream in Grand County that currently does not support cutthroat trout, construct a barrier at the downstream end of the habitat area, eradicate all the trout in the stream upstream of the barrier, and then reintroduce a core conservation population of cutthroat trout. Denver Water will provide funding to the CDOW for the habitat creation project and assist the CDOW in constructing the fish passage barrier. CDOW will obtain the necessary permits and approvals to conduct this work in the stream.

#### ***Mitigation – Stream Temperature Monitoring and Reductions in Diversions***

Denver Water will pay USGS to install, monitor and maintain a real-time temperature monitoring station on Ranch Creek at the existing USGS gaging station near Fraser, CO (USGS gage #09032000). A real-time gaging and temperature station is currently operational on the Fraser River below Crooked Creek near Tabernash, CO (USGS gage #09033300). When specified temperature values are exceeded between July 15 and August 31, Denver Water will forgo up to 250 AF of diversions from its Fraser River Collection System by releasing up to 4 cubic feet per second (cfs) per day. The 250 AF is an estimate of the amount of water that would be diverted by the Moffat Project during



the month of August. The 250 AF will be available in all years except for droughts in Denver Water's Collection System. Since the proposed Moffat Project will not divert water during dry years, the additional 250 AF of bypass flows will not be made when Denver Water places its customers on water use restrictions as part of a drought response.

For the purposes of this mitigation plan, the threshold temperature will be 21.2°C ([70.2° F] Daily Maximum) and 17°C ([62.6° F] Maximum Weekly Average) as measured at the following locations:

1. USGS gage #09032000 – Ranch Creek near Fraser, CO
2. USGS gage #09033300 – Fraser River below Crooked Creek at Tabernash, CO

As stream temperatures approach these two thresholds, coordination will take place between Denver Water and CDOW as to what facilities will be bypassing water. Then, if stream temperature reaches these thresholds, water can be bypassed in an effort to address the temperature concerns. Denver Water will also cooperate with future studies to determine what factors, other than water flow, have effects on water temperatures in the Fraser River and its tributaries below Denver Water diversion structures.

The release of 250 AF of water may be suspended in the event that and at such times as there is no material causal relationship between the Moffat Collection System Project operations and any exceedance of the temperature thresholds at the monitoring stations identified above. For the purposes of this paragraph, a "material causal relationship" is defined as either an actual measurable impact on temperature using readily available monitoring technology or a modeled impact on temperature that is not *de minimus* and is based on a computer model or studies accepted by CDOW.

Denver Water will continue its participation in and support GCWIN to monitor stream temperatures in the Fraser River basin and the Colorado River. The GCWIN stream temperature monitoring program includes 31 monitoring sites in Grand County. Monitoring of stream temperatures in the Fraser River basin will also be a component of the LBD Cooperative Effort to be implemented with Grand County. Refer to the *Enhancement Plan* for details. If the stream temperature monitoring in the Fraser River Basin indicates a need for action, the LBD Cooperative Effort could coordinate the use of the 1,000 AF of bypasses in LBD with the 250 AF described above to address the identified temperature issue in the Fraser Basin or reserve the use of that water for addressing a temperature issue in the Colorado River downstream of the Windy Gap diversion.

#### ***Mitigation –Aquatic Habitat Improvements***

Denver Water will provide up to \$750,000 for stream habitat restoration to compensate for reduced flows and subsequent potential decrease in aquatic habitat in the Fraser and upper Williams Fork rivers and tributaries. Denver Water will work with the CDOW and participants in the proposed LBD Cooperative Effort to design and implement stream habitat mitigation projects. All parties will work in good faith to ensure the project design and implementation compliments the enhancement efforts in the Basin. CDOW will be responsible for the actual design of the projects in consultation with the

Management Team for LBD and Denver Water will be responsible for permitting, implementing and maintaining the aquatic habitat improvements.

Funds may be used for stream improvements on private lands, but preference will be given to those lands where public access is allowed or on private lands where matching funds are provided. Any stream improvement on private lands will require landowner permission and a permanent easement with Denver Water or CDOW to ensure the mitigation measures remain effective for offsetting identified impacts from the Moffat Project.

### **3.1.2 Colorado River**

Operation of the Moffat Project would cause depletions to the upper Colorado River basin, which may result in elevated stream temperatures on hot summer days. The reductions in flow would indirectly affect four endangered fish species: bonytail chub, Colorado pikeminnow, humpback chub and razorback sucker. Under the Endangered Species Act, the Corps initiated formal Section 7 Consultation with the USFWS regarding the depletion effects on these federally-listed species. The USFWS issued a Biological Opinion (BO) for the Moffat Project in July 2009 determining that the proposed depletions associated with the Moffat Project would be covered under Denver Water's Recovery Agreement as new depletions. Denver Water signed a Recovery Agreement with the USFWS in 2000, which governs consultations under Section 7 of the Endangered Species Act with respect to depletions caused by water users. New depletions of more than 100 AF/yr are assessed a one-time fee to help support the Upper Colorado River Endangered Fish Recovery Program.

Table 3 presents the impacts and mitigation for the Colorado River.

#### ***Mitigation - Upper Colorado River Endangered Fish Recovery Program***

Denver Water will comply with the BO and make a payment as determined by the USFWS to help support the Upper Colorado River Endangered Fish Recovery Program.

#### ***Mitigation - Colorado River Basin Temperature Monitoring and Reductions in Diversions***

Denver Water will work with the Subdistrict to install, monitor and maintain two continuous real-time temperature monitoring stations on the Colorado River to be located at the Windy Gap stream gage and upstream of the Williams Fork River confluence. When specified temperature values are exceeded between July 15 and August 31, Denver Water will forgo up to 250 AF of diversions from its Fraser River Collection System by releasing up to 4 cubic feet per second (cfs) per day. The 250 AF is an estimate of the amount of water that would be diverted by the Moffat Project during the month of August. The 250 AF will be available in all years except for droughts in Denver Water's Collection System. Since the proposed Moffat Project will not divert water during dry years, the additional 250 AF of bypass flows will not be made when Denver Water places its customers on water use restrictions as part of a drought response. The total amount of water available for temperature issues on the Fraser River, its tributaries, and the Colorado River shall not exceed 250 AF in any one year.

For the purposes of this mitigation plan, the threshold temperatures will be 23.8°C ([74.8° F] Daily Maximum) and 18.2°C ([64.8° F] Maximum Weekly Average). As stream temperatures approach these two thresholds, coordination will take place between Denver Water and CDOW as to what facilities will be bypassing water. Then, if the stream temperature reaches these thresholds, water can be bypassed in an effort to address temperature concerns. Denver Water will also cooperate with future studies to determine what factors, other than water flow, have effects on water temperatures in the Colorado River below Windy Gap to its confluence with the Blue River.

The release of 250 AF of water may be suspended in the event that and at such times as there is no material causal relationship between the Moffat Collection System Project operations and any exceedance of the temperature thresholds at the monitoring stations identified above. For the purposes of this paragraph, a “material causal relationship” is defined as either an actual measurable impact on temperature using readily available monitoring technology or a modeled impact on temperature that is not *de minimus* and is based on a computer model or studies accepted by CDOW.

### **3.1.3 Blue River**

Flows in the Blue River basin would decrease about 5 percent in average and wet years during summer months, and increase slightly during winter months due to differences in Robert Tunnel diversions and spills at Dillon Reservoir. The Draft EIS identified no adverse effects to the aquatic habitat of the Blue River.

## **3.2 East Slope**

### **3.2.1 Gross Reservoir**

The expansion of Gross Reservoir would cause the loss of 1.95 acres of wetlands (1.84 acres due to reservoir inundation and tree clearing up to elevation 7,410 feet, and 0.11 acre due to the dam construction). These wetlands occur along drainages that are tributary to Gross Reservoir and along the shoreline of the reservoir.

About 4 acres of riparian resources would also be inundated by the expansion of Gross Reservoir. The majority of the riparian impacts would occur around the reservoir shoreline and Forsythe Gulch.

The initial filling of Gross Reservoir may increase organic matter in the reservoir, which could result in a minor short-term decrease in water quality. Once the organic matter has decayed or is removed from the reservoir, water quality should return to pre-construction conditions.

Table 4 presents the impacts and mitigation for Gross Reservoir.

### ***Mitigation – Compensatory Wetlands***

The wetland compensatory mitigation rule (*Federal Register*, Vol. 73, No. 70, April 10, 2008, 19670) establishes a priority for the use of wetland mitigation banks to compensate for wetland impacts. Denver Water proposes to purchase sufficient credits from an approved wetland mitigation bank to compensate for the 1.95 acres of lost wetlands.

As an alternative to the purchase of mitigation bank credits, Denver Water could create permittee-responsible mitigation in the South Boulder Creek watershed, including the area around Gross Reservoir. The mitigation areas would provide similar functions and values to the wetlands impacted as required by the Corps' compensatory mitigation rule.

#### ***Mitigation – Riparian Habitat Plantings***

Similar to the existing riparian resources at Gross Reservoir, it is anticipated that the lost riparian resources would reestablish over time at the upper portions of an expanded Gross Reservoir. Denver Water will determine areas that likely will support riparian vegetation and plant native woody riparian vegetation in these areas to speed the establishment of riparian vegetation. To provide a supportive hydrology for the riparian vegetation, these plantings will occur once an expanded Gross Reservoir is filled.

Denver Water will prepare a riparian vegetation establishment plan for the CDOW and Corps that will:

- Establish a schedule for the proposed plantings
- Identify the areas (location and size) for proposed riparian establishment
- Identify the quantity, size, and species of plant materials
- Establish success criteria and monitoring requirements

#### ***Mitigation – Water Quality Monitoring***

Denver Water will remove as much of the organic material (i.e., vegetation) as practicable from the inundation area prior to filling the reservoir. CDOW will monitor and evaluate metal levels in fish tissue for five years after the initial fill of the enlargement. In addition, Denver Water will continue its current water quality monitoring program.

### **3.2.2 South Boulder Creek**

Operation of the Moffat Project would generally increase flows in South Boulder Creek upstream of Gross Reservoir, which could result in a minor impact to fish and invertebrates due to a potential reduction in fish habitat availability.

The expansion of Gross Reservoir would permanently impact approximately 8,356 linear feet of streams tributary to the reservoir. Approximately 8,180 linear feet of stream channel would be inundated by the expanded reservoir including:

- South Boulder Creek (2,575 feet)
- Winiger Gulch and a tributary (3,024 feet)
- Forsythe Gulch (1,420 feet)
- Unnamed Tributary (1,160 feet)

Approximately 176 linear feet of stream channel downstream of the dam would be impacted by the expanded dam footprint, including:

- South Boulder Creek (4 feet)
- Advent Gulch, an intermittent drainage (172 feet)

Table 5 presents the impacts and mitigation for South Boulder Creek.

### ***Mitigation – Environmental Pool***

Denver Water will compensate for the impacts to aquatic habitat in South Boulder Creek and the loss of stream channel tributary to Gross Reservoir by enhancing low flows in South Boulder Creek downstream of Gross Reservoir. This will be accomplished through a collaborative effort with the cities of Boulder and Lafayette to create an Environmental Pool in the expanded reservoir. Approximately 17 miles of aquatic habitat in South Boulder Creek from Gross Dam to the confluence with Boulder Creek would benefit by the release of water from the Environmental Pool during historic low flow conditions.

Discussions with CDOW, cities of Boulder and Lafayette, Boulder County, and Trout Unlimited indicated that the priority for aquatic habitat improvements on South Boulder Creek is downstream of Gross Reservoir below the South Boulder Diversion Canal. To address this priority, Denver Water would create an additional 5,000 AF Environmental Pool at Gross Reservoir. This additional storage would be filled with water rights owned and provided by the cities of Boulder and Lafayette and released for environmental flows. None of Denver Water's existing or future water supply would be stored in the Environmental Pool. Gross Dam would need to be raised approximately 6 feet, beyond the proposed expansion of the 7,400-foot spillway elevation, to a spillway elevation of 7,406 feet. The additional 5,000 AF of mitigation water stored in Gross Reservoir would be managed under an Intergovernmental Agreement, and released appropriately with the goal of meeting minimum in-stream flows in South Boulder Creek below Gross Reservoir. Denver Water entered into the Environmental Pool arrangement to serve as mitigation for any projected adverse aquatic impacts of the Moffat Project to South Boulder Creek and streams tributary to Gross Reservoir, and to provide the flexibility to enhance aquatic habitats downstream of Gross Reservoir.

### ***Mitigation – Monitoring of Stream Bank Stability***

Denver Water currently monitors for channel instability and bank erosion on USFS lands along South Boulder Creek between the Moffat Tunnel and Gross Reservoir. This is a USFS condition within Denver Water's existing FERC license. Denver Water will continue the current monitoring program and, if determined by CDOW, will add an additional monitoring site near the inlet to Gross Reservoir. In the event that localized areas of erosion are detected, Denver Water and the USFS will jointly develop protective measures to be implemented by Denver Water.

### **3.2.3 North Fork South Platte River**

Operation of the Moffat Project would change Denver Water's releases from the Roberts Tunnel into the North Fork South Platte River (North Fork) downstream of the Roberts Tunnel outlet. Flows would generally be lower during winter months and higher during summer months. The lower flows during the winter months are due to a change in the artificial flow regime maintained in the North Fork by the importation of water from the Blue River and are not the result of any changes to the natural hydrology of the North Fork. These flow changes would potentially result in minor decreases in available habitat for brown trout and minor adverse effects to benthic invertebrate populations.

Table 6 presents the impacts and mitigation for North Fork South Platte River.

### ***Mitigation – Aquatic Habitat Improvements***

To compensate for reduced flows and subsequent potential decrease in aquatic habitat in the North Fork, Denver Water will implement the following actions:

1. Aquatic Habitat Improvements on the South Platte River. Denver Water will provide up to \$1.5 million for stream habitat improvements. For example, pool habitat could be created by a combination of boulder placement and grade controls. A management committee consisting of Denver Water, CDOW, and USFS will be established to identify locations for improvements. This committee will operate by consensus and make a good faith effort to resolve any conflicts. The committee will also coordinate with the South Platte Enhancement Board to ensure consistency with the South Platte Protection Plan and protection of the Resource Values. CDOW will be responsible for the actual design, permitting, and implementation of aquatic habitat improvements. These funds will be used for stream improvements primarily on public land. Funds may be used for stream restoration on private land, but only where a conservation easement is in place that allows public access. Any restoration activities on private land may be funded by other sources or may be funded through a program of matching private funds with public funds.
2. Bank Stabilization on the North Fork South Platte River. Denver Water will establish a stream bank stability monitoring program at up to five sites on USFS lands along the North Fork to monitor for evidence of bank erosion. If any bank erosion is observed, Denver Water will contribute up to \$250,000 for structural modification projects on USFS lands. These projects will be done in cooperation with the USFS and CDOW.

#### **3.2.4 South Platte River**

Operation of the Moffat Project would cause new depletions to the South Platte River, which could indirectly affect threatened or endangered species and associated habitat in the Platte River in Nebraska, including whooping crane, interior least tern, piping plover, pallid sturgeon, and western prairie fringed orchid. Under the Endangered Species Act, the Corps initiated formal Section 7 Consultation with the USFWS regarding the depletion effects on these federally-listed species. The USFWS issued a BO in July 2009 and determined that the proposed depletions associated with the Moffat Project would be covered under Denver Water's participation in the South Platte Water-Related Activities Program, Inc. (SPWRAP), which provides compliance with Section 7 requirements under the Platte River Recovery Implementation Program.

Table 7 presents the impacts and mitigation for South Platte River.

### ***Mitigation – Platte River Recovery Program***

Denver Water will continue participating in SPWRAP.



#### 4.0 COST AND SCHEDULE

If permitted in 2011, Moffat Project is anticipated to start construction in 2013/2014. The estimated construction period is 4 years and operation would begin in 2017/2018. A schedule for implementing the mitigation measures will be developed with CDOW and presented in the final FWMP. The following is a summary of the estimated funding Denver Water will provide for the mitigation measures:

River Basin	Proposed Mitigation	Estimated Costs
Fraser River and upper Williams Fork River	--Colorado River Cutthroat Trout Habitat Improvements	--\$72,500
	-- Aquatic Habitat Restoration	--\$750,000
	-- Temperature Monitoring Station	-- \$20,000
Colorado River	--Temperature Monitoring Stations	-- \$50,000
	--BO Compliance	--\$280,000
Gross Reservoir	-- Riparian Vegetation Plantings	--\$40,000
	--Compensatory Wetlands	--\$300,000
	--Water Quality Monitoring	--\$0
South Boulder Creek	--Environmental Pool (total cost \$8 million)	--\$4,000,000 (DW share)
	-- Streambank Monitoring	--\$0
North Fork South Platte River and/or South Platte	--Aquatic habitat Restoration,	--\$1,500,000
	-- North Fork Bank Erosion with Aquatic Habitat Improvements	--\$250,000
	--SPWRAP	--\$0
<b>TOTAL ESTIMATED COST</b>		<b>\$7,262,500</b>

**Mitigation Insurance Policy** - The mitigation listed above is based on the Draft EIS for the Moffat Collection System Project that was released for public comment in October of 2009. Since that time and based on comments to the Draft EIS, the Corps has conducted additional studies related to the preparation of the Final EIS that in part are designed to further refine the analysis of environmental impacts of the proposed action. If new impacts to fish and wildlife resources are identified in the Final EIS that were not discussed in the Draft EIS and not addressed in this mitigation plan, Denver Water will propose mitigation for these new impacts. The additional mitigation will be developed in cooperation with the CDOW prior to submittal to the Corps for its consideration as a Section 404 Permit condition. Denver Water will reserve \$600,000 for any new impacts to fish and wildlife resources identified by the Final EIS and required by the Corps. If the Corps does not identify new impacts requiring mitigation, Denver Water will have no further obligation to reserve this money.

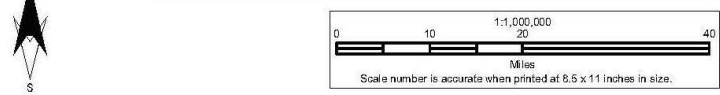
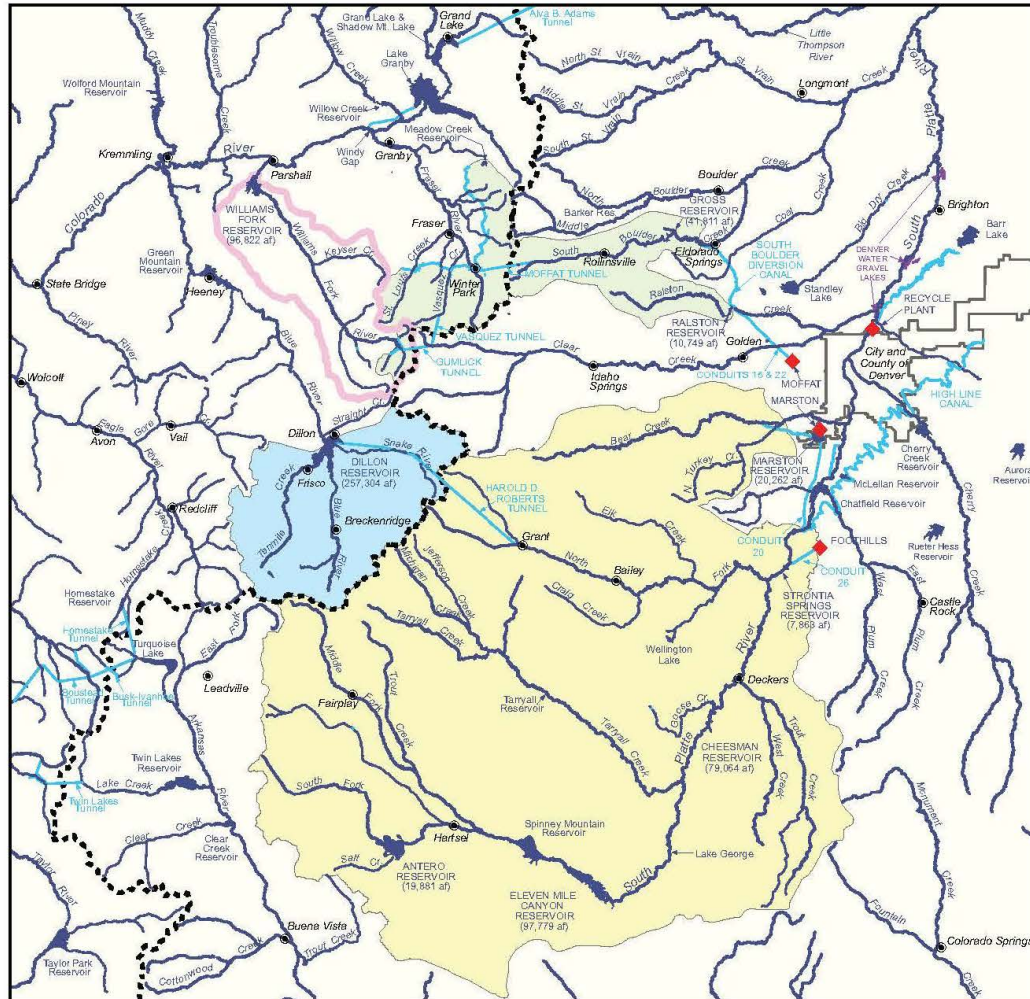
In addition to the funding identified above, there is significant additional funding in the *Enhancement Plan* for fish and wildlife resources. The goal is to coordinate the actions listed as mitigation and the actions listed as environmental enhancements to assure the environment receives the maximum benefit.

## **5.0 CONCLUSION**

The FWMP presents a broad range of mitigation actions to address the potential fish and wildlife impacts of the Moffat Project. If accepted by the Colorado Wildlife Commission and CWCB, this mitigation plan will represent the official state position on the Moffat Project. Since the state-adopted FWMP is not enforceable by itself, Denver Water anticipates that the Corps and USFS will determine these mitigation measures are adequate and will impose them within their regulatory requirements in the Section 404 Permit and Section 4e conditions of the FERC license, respectively.



City and County of Denver  
Board of Water Commissioners  
**Water Collection System**



June 2009  
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This Geographic Information Systems (GIS) map is provided "as is" with no claim by the Denver Water Board as to the completeness, usefulness or accuracy of its content.  
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Table 1 - WEST SLOPE - Fraser River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Surface Water</b>		
<u>Surface water flows :</u> Flows in the Fraser River basin would decrease in average and wet years during the runoff months due to Denver Water's additional diversions. Additional diversions would be highly concentrated during the runoff months primarily in May, June, and July and typically would be greatest in wet years following dry year sequences. Average annual flows in the Fraser River at the Granby gage would decrease 9% (12 cfs). Denver Water currently diverts 63,800 AF through the Moffat Tunnel (66,500 AF at full use of existing system). Will increase to 76,800 with the Moffat Project.	Denver Water to provide \$72,500 for cutthroat trout habitat protection/enhancement and \$750,000 for Aquatic Habitat Improvements.	CDO and Corps
<u>Surface Water Quality :</u> The Ranch Creek tributary could experience moderate impacts due to a potential increase in frequency of approaching or exceeding the stream temperature standard.	Install, monitor and maintain a real-time temperature gage on the USGS station (Gage #09032000) on Ranch Creek.	CDO and Corps
The mainstem of the Fraser River downstream of the Town of Fraser could experience negligible to minor impacts due to a potential increase in frequency of approaching or exceeding the stream temperature standard.	Denver Water will forgo up to 250 AF of diversions from its Fraser River Collection System by releasing up to 4 cfs if the Moffat Project is diverting. Continued support of GCWIN monitoring.	
<u>Stream Morphology and Sedimentation :</u> Only minor amounts of localized sediment deposition are anticipated. Locations along the Fraser River where traction sand currently increases the natural sediment supply are and would remain the most susceptible to local deposition. Any deposition that occurs should be limited in extent and magnitude and should pose only minor changes to channel morphology.	None	---
<b>Groundwater</b>		
Changes in the Fraser River stream flow would cause indirect impacts to localized groundwater gradients and water levels near the river as the hydrologic system balances the different stream flows with changes in the groundwater input component to the stream. This would likely result in a negligible impact to the groundwater.	None	---
<b>Riparian/Wetland</b>		
<u>Upper Fraser River :</u> Considering the small amount of area involved and the likely response of vegetation to the change in stream stage, the impact on riparian vegetation is expected to be negligible.	None	---
<u>Lower Fraser River :</u> No measureable impacts to riparian vegetation would be expected in this area.	None	---
<b>Wildlife</b>		
Impacts to wildlife from changes in river flows would not have a noticeable impact on wildlife habitat or wildlife species.	None	---

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 1 - WEST SLOPE - Fraser River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Special Status Species</b>		
Flow changes would adversely affect Colorado River system endangered fish species (Colorado pikeminnow, bonytail chub, humpback chub, razorback sucker). Minimal effects to bald eagles, river otter, boreal toad. No effects to Colorado River cutthroat trout are anticipated.	Continued participation in the Upper Colorado River Endangered Fish Recovery Program per the U.S. Fish and Wildlife Service (USFWS) Biological Opinion.	USFWS
<b>Aquatic Resources</b>		
<u>Fraser River - Mainstem</u> Flushing of fine sediment would continue with the Moffat Project because the flows would be much higher than needed to transport sediment. There would be no increase in sedimentation and no impact to channel morphology.	None	---
<u>Fraser River - Tributaries</u> In most of the Fraser River tributary streams, the reductions in runoff flows during the runoff months of wet years would result in a minor adverse impact compared to full use of existing system.	See Surface Water Flows.	CDOW and Corps
<b>Recreation</b>		
During average and wet years, the Moffat Project would result in a major long-term effect to boating. On average, the number of days within the optimum flow range of 400-700 cfs would drop from 14 to 9 days. This also equates to an approximate loss of 3-4 days per year within optimum flow levels. In wet years, the impact on boating used would be negligible. In dry years, boating would not be impacted.	None	---
Flow reductions during high flow periods are not likely to adversely affect the quality of the fishing experience. The reductions in flow in North Fork Ranch could have a minor adverse impact on the fish communities, and thus an associated minor adverse impact on the quality of the fishing experience.	None	---

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 2 - WEST SLOPE - Williams Fork River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Surface Water</b>		
<p><u>Williams Fork Reservoir surface water elevation fluctuation:</u> The average differences in end-of-month content translates to a drop in elevation of less than 1 foot in any month.</p>	None	---
<p><u>Surface water flows:</u>  <b>Below Reservoir:</b> Flows in the Williams Fork basin would decrease in average and wet years during the runoff months due to Denver Water's additional diversions. Additional diversions would be highly concentrated during the runoff months primarily in May, June, and July and typically would be greatest in wet years following dry year sequences. Average annual flows in the Williams Fork River below the reservoir would decrease approximately 2% (equals 2 cfs).  <b>Above Reservoir:</b> Four headwater tributaries are affected by Denver Water diversions: Steelman, Bobtail, Jones, McQueary creeks. Average annual flows would decrease due to increased diversions during the runoff months primarily in May, June, and July through Gumlick Tunnel. These diversions would be greatest in wet years following dry years. During dry years no additional water is diverted as Denver Water currently diverts all available water during dry years.</p>	Denver Water to provide \$72,500 for cutthroat trout habitat protection/enhancement and \$750,000 for Aquatic Habitat Improvements.	CDOW and Corps
<p><u>Stream Morphology and Sedimentation:</u> Annual peaks would generally be the same or lower under the Moffat Project, implying the same or reduced areas of inundation for the flood of a given return interval. Lower frequency events (high flows, return intervals greater than 2 to 5 years) are likely to be the same, while higher frequency events are likely to be reduced. Despite the predicted reductions in sediment transport capacity, the sediment transport capacity for the project remains orders of magnitude greater than sediment supply. These results indicate that the system is sediment limited and the morphology of the channel is not expected to be impacted by flow reductions.</p>	See Surface Water Flows.	CDOW and Corps
<b>Groundwater</b>		
<p>Decrease in flows for an average year would occur upstream (i.e., Darling Creek gage) and downstream of the Williams Fork Reservoir. Changes in the Williams Fork stream flow would cause indirect impacts to localized groundwater gradients and water level near the river as the hydrologic system balances the different stream flows with changes in the groundwater input component to the stream. Groundwater quality would result in negligible impacts to the Williams Fork groundwater system. Gaining streams supported by groundwater. There may be localized effects, but minimal.</p>	None	---
<b>Riparian/Wetland</b>		
<p>The area affected by reduction in inundation area would be small (0.02 - 0.18 acres/per mile). This, combined with the higher elevation of these sites where precipitation and hillside runoff is likely to play an important role in supporting riparian vegetation, would result in no measureable adverse impacts to riparian vegetation.</p>	None	---
<b>Wildlife</b>		
<p>Impacts to wildlife from changes in river flows would not have a noticeable impact on wildlife habitat or wildlife species.</p>	None	---



Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 2 - WEST SLOPE - Williams Fork River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Special Status Species</b>		
Flow changes would adversely affect Colorado River system endangered fish species (Colorado pikeminnow, bonytail chub, humpback chub, razorback sucker). Minimal effects to boreal toad. No effects to Colorado River cutthroat trout are anticipated.	Continued participation in the Upper Colorado River Endangered Fish Recovery Program per the U.S. Fish and Wildlife Service (USFWS) Biological Opinion.	USFWS
<b>Aquatics Resources</b>		
<u>Williams Fork River - Mainstem</u> There would be no changes in water quality, riparian vegetation or channel morphology that would affect fish and invertebrates in the Williams Fork. Minor changes to spawning period for brook trout.	None	---
<u>Williams Fork River - Tributaries</u> The flow reductions during runoff with the project would have a minor adverse on the fish and invertebrate populations in McQueary, Jones, Bobtail, and Steelman creeks. Although there would be no change in the critical winter flow, the project would reduce the flow passing the diversions in wet months and extend the period when these streams are fully diverted.	See Surface Water Flows.	CDO and Corps
<b>Recreation</b>		
No impacts are expected to occur to the quality of fishing experience along the Williams Fork as a result of the project.	None	---

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 3 - WEST SLOPE - Colorado River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Surface Water</b>		
<p><u>Surface water flows</u> :</p> <p>Flows along the Colorado River mainstem would decrease in average and wet years during the runoff months due to changes in surface water flows in Fraser, Williams Fork, and Blue river basins, which would translate downstream and into the Colorado River. Average annual flows in the Colorado River near Kremmling would decrease 2%.</p> <p><u>Stream Morphology and Sedimentation</u> :</p> <p>Annual peaks would be generally the same or lower under the Moffat Project, implying the same or reduced areas of inundation for the flood of a given return interval. Lower frequency events (high flows, return intervals greater than 2 to 5 years) are likely to be the same, while higher frequency events are likely to be reduced. Despite the predicted reductions in sediment transport capacity, the sediment transport capacity for the project remains orders of magnitude greater than sediment supply. These results indicate that the system is sediment limited and the morphology of the channel is not expected to be impacted by flow reductions.</p>	<p>Install, monitor and maintain two real-time temperature gages on the Colorado River (one at Windy Gap and the other upstream of the Williams Fork River confluence). Denver Water will forgo up to 250 AF of diversions from its Fraser River Collection System by releasing up to 4 cfs if the Moffat Project is diverting.</p> <p>Continued support of GCWIN monitoring.</p>	CDOW and Corps
<b>Groundwater</b>		
Decreases in flows for an average year would occur downstream of the Windy Gap gage and the Kremmling gage. These decreases in surface water flow would result in lower river water levels, a narrower width of the river, and the potential for indirect impacts on the groundwater gradient to the river and water levels in the vicinity of the river.	None	---
<b>Riparian/Wetland</b>		
The reduction in inundation area would be 0.002 acres within the 953-foot study segment and 0.01 acre when extrapolated over a 1-mile distance. These impacts along the Colorado River would be negligible.	None	---
<b>Wildlife</b>		
Impacts to wildlife from changes in river flows would not have a noticeable impact on wildlife habitat or wildlife species.	None	---
<b>Special Status Species</b>		
Flow changes would adversely affect Colorado River system endangered fish species (Colorado pikeminnow, bonytail chub, humpback chub, razorback sucker). Minimal effects to bald eagle and river otter.	Continued participation in the Upper Colorado River Endangered Fish Recovery Program per the U.S. Fish and Wildlife Service (USFWS) Biological Opinion.	USFWS
<b>Aquatic Resources</b>		
There would be no changes in water quality, riparian vegetation or channel morphology that would affect fish and invertebrates in the Colorado River.	None	---
<b>Recreation</b>		
Overall, the Project would have a negligible or no impact on boating uses on the Colorado River. No impacts to fishing are anticipated. The optimum flow range for rafting is 700-2,000 cfs. The Project would not affect the number of days within this flow range. There would be a minor beneficial effect on kayaking, slightly increasing the number of days when flow falls within the desired range of 400-1,100 cfs from May through Sept. (98.6 on average to 101.2 days).	None	---

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 4 - EAST SLOPE - GROSS RESERVOIR		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Surface Water</b>		
<u>Reservoir Volume and Fluctuation :</u> Gross Reservoir would increase by 72,000 AF to volume of 113,811 AF. Normal high water level would increase by 118 feet and surface area would increase by 400 acres to 818 acres. Gross Reservoir would be at its lowest level at the end of April, reach its highest level in June or July, and be drawn down through the fall and winter. Gross would have a higher outflow during the winter, which would increase flow between Gross and the South Boulder diversion canal compared to Full Use conditions. Although not identified as an impact in the DEIS the Colorado Division of Wildlife (CDOW) has safety concerns for the ice fisherman due to the potential increased void space between the ice and surface water elevation of the reservoir as a result of removing more water in the wintertime.	Expansion would create an additional 400 acres of open water habitat.	CDOW and Corps
<u>Reservoir Evaporation (average annual evaporative loss) :</u> Evaporative losses would increase to 991 AF annually (compared to 477 AF under existing conditions).	None	---
<u>Reservoir Water Quality :</u> Initial filling operations of Gross Reservoir may increase the organic matter resulting in minor, short-term decrease in water quality.	Denver Water will remove as much debris as possible from the inundation area before filling the reservoir. CDOW will evaluate levels of metals in the fish for 5-years following completion of the first fill of expanded reservoir. DW will continue existing monitoring program to evaluate water quality.	CDOW and Corps
<b>Groundwater</b>		
<u>Seepage and Groundwater Mounding :</u> Increase in groundwater levels due to increased seepage from enlarged reservoir. Resulting in a decrease in hydraulic gradients upstream of the reservoir.	None	---
<b>Riparian/Wetlands</b>		
<u>Direct impacts to wetlands :</u> Permanent impact to 1.95 acres of wetlands (1.83 acres from reservoir inundation and 0.12 from dam footprint) and 0.12 acres of temporary impact.	Mitigation for these impacts will be determined by the U.S. Army Corps of Engineers either by: Purchase sufficient credits from an approved wetland mitigation bank to offset for lost wetlands, <b>OR</b> Create permittee-responsible mitigation wetlands within the South Boulder Creek watershed, including area around Gross Reservoir.	Corps
<u>Direct impacts to other waters of the U.S. :</u> Permanent impact to 3.53 acres (1.58 miles) of tributaries (South Boulder Creek, Winiger Gulch, Forsythe Gulch) and 0.49 acres (453 feet) of temporary impact.	Creation of an Environmental Pool to enhance low flows in South Boulder Creek downstream of Gross Reservoir to the confluence of Boulder Creek per an Intergovernmental Agreement (IGA) with the cities of Boulder and Lafayette.	Corps



Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 4 - EAST SLOPE - GROSS RESERVOIR		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<u>Direct impacts to riparian habitats:</u> Permanent impact to 4.08 acres of riparian habitat and <0.1 acre of temporary impact.	Identify planting areas around Gross Reservoir that will support native woody riparian vegetation and prepare a riparian vegetation establishment plan. Plantings will be wildlife friendly, directed towards bears. Plan will be reviewed by U.S. Forest Service (USFS).	CDOW, Corps and USFS
<b>Vegetation</b>		
<u>Loss of vegetation:</u> Permanent impact to 456 acres of vegetation and 52 acres of temporary impact (456 acres includes 400 acres for reservoir inundation area, plus dam footprint, roads, auxiliary spillway, quarries, spoil areas, tree removal).	Implement revegetation, forest management and weed control plans per Federal Energy Regulatory Commission (FERC) license amendment.	FERC, Corps and USFS
<u>Loss of sensitive habitats:</u> Loss of 17% of Winiger Gulch Potential Conservation Areas (PCA), 10.5% of South Boulder Creek PCA, and 7% of Winiger Ridge Environmental Conservation Area (ECA).	Incorporate with mitigation for riparian vegetation. Re-establish plant communities lost during construction activities.	CDOW, Corps and USFS
<b>Wildlife</b>		
<u>Effects on elk crucial seasonal habitats:</u> Permanent impact to 246 acres of elk severe winter range and 269 acres of winter concentration area. The habitat impacted represents less than 2% of the severe winter range and 3% of the winter concentration area within 3 miles of the reservoir.	See Vegetation.	CDOW, Corps and USFS
<u>Effects on other big game species:</u> Loss of non-crucial habitat for mule deer, black bear, and mountain lion. Potential collisions along haul roads and temporary displacement during construction are likely. The impacted area represents a very small percentage of the available habitat in the surrounding area.	See Vegetation.	CDOW, Corps and USFS
<u>Habitat fragmentation:</u> Inundation of South Boulder Creek and Winiger Gulch above the reservoir would have a minor effect on big game movement.	None	---
<u>Raptor and other migratory birds:</u> Construction-related activities may affect nesting birds. Long-term loss of habitat for forest birds.	Compliance with the Migratory Bird Treaty Act. Pre-construction surveys to identify active nests in Project footprint area and timing of land-clearing activities to avoid breeding season. Include CDOW's Best Management Practices (BMPs) for wildlife into final design.	CDOW, Corps and USFWS

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 4 - EAST SLOPE - GROSS RESERVOIR		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Special Status Species</b>		
Loss of habitat and possible mortality to dwarf shrew and northern leopard frog during construction. Loss of habitat for several forest bird species. Temporary, minor, indirect impacts to several bird and bat species during construction.	Observe CDOW's BMPs for special status species.	CDOW
<b>Aquatic Resources</b>		
The enlargement of the reservoir would support more fish than the existing reservoir and may provide opportunities for additional species of fish to become established. Construction activities during the enlargement would have a temporary direct moderate adverse impact on the fish and invertebrate community. The impact would last until construction activities are complete.	None	CDOW

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 5 - EAST SLOPE - South Boulder Creek		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Surface Water</b>		
<p><u>Surface water flows:</u> Flows in South Boulder Creek upstream of Gross Reservoir would increase in average and wet years during the runoff months due to Denver Water's additional diversions thru the Moffat Tunnel. Average annual flow at the Pinedcliff gage would increase 10%.</p> <p>From Gross Reservoir to the South Boulder Diversion Canal, changes in flow reflect reservoir operations. In general, flows would be higher during winter months as water would be moved out of Gross Reservoir and into Ralston Reservoir in response to the water treatment plant load shift. Average annual flow would increase 8%.</p> <p>Downstream of the South Boulder Diversion Canal, flows would generally decrease on average because Denver Water would divert more native South Boulder Creek water. Average annual flow would decrease 2%.</p>	Creation of an Environmental Pool at Gross Reservoir to enhance winter low flows in South Boulder Creek per an Intergovernmental Agreement (IGA) with the cities of Boulder and Lafayette.	Corps
<p><u>Stream Morphology and Sedimentation:</u> Increases in flow would result in an increase in sediment transport capacity along South Boulder Creek. It is possible that the transport capacity is orders of magnitude greater than available sediment supply. Reductions in sediment transport capacity resulting from the Moffat Project are expected to have negligible impacts on channel morphology.</p>	Stream channel stability monitoring above Gross Reservoir is a Federal Energy Regulatory Commission (FERC) component and will be continued. Possibly add a photo documentation station on South Boulder Creek near the inlet to Gross Reservoir.	FERC and CDOW
<b>Groundwater</b>		
The impacts to stream flow changes on groundwater are expected to be negligible.	None.	---
<b>Riparian/Wetlands</b>		
<p><u>Indirect Impacts:</u> Flows would both increase and decrease at different times of year, but changes would be within range of variability. Minimal effects, if any, on riparian and wetland vegetation. Slight shift in species composition towards plants that are more tolerant of wetter conditions.</p>	None	---
<p><u>Direct Impacts:</u> Inundation of 2,575 feet of South Boulder Creek upstream of Gross Reservoir; 4 feet of South Boulder Creek downstream of Gross Reservoir will be lost due to the expanded dam footprint.</p>	See Surface Water Flows.	Corps
<b>Wildlife</b>		
Inundation of South Boulder Creek above Gross Reservoir would have minor effects on big game movement.	None	---
<b>Special Status Species</b>		
Flow changes would contribute to adverse effects on Platte River system threatened and endangered species (whooping crane, piping plover, least tern, and pallid sturgeon). May affect, but not likely to adversely effect Preble's meadow jumping mouse and Ute ladies-tresses and their habitat downstream of South Boulder Diversion Canal diversion point.	Compliance with the Endangered Species Act and Biological Opinion (BO) issued by the US Fish & Wildlife Service (USFWS). Participation in the Platte River Recovery Implementation Program.	USFWS

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 5 - EAST SLOPE - South Boulder Creek		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Aquatic Resources</b>		
Increases in runoff flows would have minor adverse impacts to fish and invertebrates due to a potential reduction in fish habitat availability in South Boulder Creek upstream of Gross Reservoir. Downstream of Gross Reservoir, the increases in winter flows and reductions in runoff flows would have a moderate beneficial impact to fish and invertebrates due to potential increase in habitat availability.	See Surface Water Flows.	Corps
<b>Recreation</b>		
<p><b>Boating:</b> Impact on boating above and below Gross Reservoir would be minor/beneficial and negligible, respectively.</p> <p><b>Fishing:</b> Based on changes in fish habitat availability (see above), there may be a minor, adverse impact on the quality of fishing on the Upper South Boulder Creek due to a potential reduction in fish habitat availability. There may be a minor beneficial impact to the fishing experience on Lower South Boulder Creek.</p>	None	---

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 6 - EAST SLOPE - North Fork South Platte River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Surface Water</b>		
Diversions through the Roberts Tunnel during the winter months would be lower on average, which results in equivalent lower flows in the North Fork South Platte in these months. Summer diversions through Roberts Tunnel would generally be higher, and consequently flows would be higher on average from May through September. Average annual flow below Geneva Ck gage would increase 3%. A decrease of winter flow (25-30%) would occur Nov-March (Decrease of 30% equals 30cfs). An increase of summer flow (13-29%) would occur May-Aug (Increase of 29% equals approximately 50 cfs, depending on the month).	Denver Water proposes up to \$1.5 million worth of stream habitat improvements in the North Fork South Platte or the South Platte River. Plan would be developed with U.S. Army Corps of Engineers (Corps), Colorado Division of Wildlife (CDOW), U.S. Forest Service (USFS), and Landowners.	CDOW, Corps and USFS
<b>Water Quality:</b> Changes in the concentrations of copper, iron and nickel are anticipated. Concentrations of these constituents are anticipated to increase during periods of reduced deliveries from the Roberts Tunnel. Concentrations are anticipated to decrease during periods of increased deliveries through the Roberts Tunnel leading to negligible impacts.	Denver Water will continue to participate in the South Platte Protection Plan.	
<b>Stream Morphology and Sedimentation:</b> Flow changes upstream of Shawnee could result in an increase in sediment transport capacity, which could lead to minor amounts of localized bed and bank erosion. Flow changes upstream of Pine are expected to have negligible to no impact on stream morphology.	Denver Water will establish up to 5 stream bank monitoring points on U.S. Forest Service (USFS) lands. If stream bank erosion is observed, Denver Water will allocate up to \$250,000 for stream bank stabilization.	Corps and USFS
<b>Groundwater</b>		
Below the Geneva Creek gage, flows would decrease in winter and increase in the summer in an average year. The maximum expected increases and decreases in flow would have minor effects on groundwater and would be limited to only the areas near the river and are well within normal seasonal fluctuations.	None	---
<b>Riparian/Wetland</b>		
The area affected over the study reach would be less than 0.01 acre, and only 0.01 to 0.02 acre when extrapolated over a 1-mile distance. Therefore, any impacts on riparian vegetation would be negligible.	None	---
<b>Wildlife</b>		
Impacts to wildlife from changes in river flows would not have a noticeable impact on wildlife habitat or wildlife species.	None	---
<b>Special Status Species</b>		
Flow changes would contribute to adverse effects on Platte River system threatened and endangered species (whooping crane, piping plover, least tern, and pallid sturgeon). May affect, but not likely to adversely effect Preble's meadow jumping mouse critical habitat between Waterton Canyon and above Chatfield Reservoir. Minimal effects on bald eagle.	Compliance with the Endangered Species Act and Biological Opinion (BO) issued by the US Fish & Wildlife Service (USFWS). Participation in the Platte River Recovery Implementation Program. Compliance with the Migratory Bird Treaty Act.	USFWS

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 6 - EAST SLOPE - North Fork South Platte River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Aquatic Resources</b>		
Increases in runoff flows and higher concentrations of copper would have a minor adverse impact to fish and invertebrates	See Surface Water Flows.	CDOW, Corps and USFS
<b>Recreation</b>		
<b>Boating:</b> Increase in flow in summer months would have a minor beneficial impact on boating use. <b>Fishing:</b> Increases in flow in the summer may make it slightly more difficult to fish during periods of high flows, but overall impact is minor, possibly resulting in a shift in the period of use to later in the season.	See Surface Water Flows.	CDOW, Corps and USFS



Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 7 - EAST SLOPE - South Platte River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Surface Water</b>		
<u>Antero Reservoir surface water elevation fluctuation :</u> The maximum increase and decrease in reservoir elevation (averaged over the month) for any month over the 45-year study period between Full Use of Existing System and the Project is 9 feet to 7 feet, respectively. Antero is utilized for multi-year droughts, therefore is not affected by the project.	None	---
<u>Eleven Mile Canyon Reservoir surface water elevation fluctuation :</u> The maximum increase and decrease in reservoir elevation (averaged over the month) for any month over the 45-year study period between Full Use of Existing System and the Project is 4 feet to 3 feet, respectively. Eleven Mile is utilized for multi-year droughts, therefore is not affected by the project.	None	---
<u>Cheesman Reservoir surface water elevation fluctuation :</u> The maximum increase and decrease in reservoir elevation (averaged over the month) for any month over the 45-year study period between Full Use of Existing System and the Project is 61 feet to 6 feet, respectively.	None	---
<u>Strontia Springs Reservoir surface water elevation fluctuation :</u> Reservoir evaporation, contents, and elevation changes to Strontia Springs Reservoir would be negligible. No recreation is allowed on Strontia Springs Reservoir.	None	---
<u>Chatfield Reservoir surface water elevation fluctuation :</u> Reservoir evaporation, contents, and elevation changes to Chatfield Reservoir would be negligible. The project has no impact on storage or operations of Chatfield Reservoir.	None	---
<u>Surface water flows :</u> Flow changes along the South Platte would be relatively minor and vary depending on the location. South Platte flows at the Waterton Canyon gage would decrease on average in summer months (max. decrease of 5% in June) due to Denver Water's additional direct diversions and exchanges to Strontia Springs Reservoir and Conduit 20. There would be little change in flows at the Waterton gage in most winter months (1% in Dec and 0% in Jan-March). Flows at the Henderson gage would increase on average during winter months from Oct-Nov (2-9%) and little change in flow May-Sept.	None	---
<u>Stream Morphology and Sedimentation :</u> Given the minor flow changes to the South Platte, impacts to channel morphology under the project are likely to be negligible.	None	---
<b>Groundwater</b>		
Below Chatfield Reservoir and at the Denver gage, flows increase in the winter and decrease in late summer in an average year. The maximum expected increases and decreases in flow would have minor effects on groundwater and would be limited to only the areas near the river and would be well within the normal seasonal fluctuations typical for aquifers along streams in mountainous terrain.	None	---
<b>Riparian/Wetland</b>		
The changes in stream flow associated with the Moffat Project would have no measurable effects to wetlands, other waters, and riparian area along the South Platte.	None	---

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 7 - EAST SLOPE - South Platte River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<b>Wildlife</b>		
Impacts to wildlife from changes in river flows would not have a noticeable impact on wildlife habitat or wildlife species.	None	---
<b>Special Status Species</b>		
Flow changes would contribute to adverse effects on Platte River system threatened and endangered species (whooping crane, piping plover, least tern, and pallid sturgeon). May affect, but not likely to adversely effect Preble's meadow jumping mouse critical habitat between Waterton Canyon and Chatfield Reservoir, habitat along South Platte between Cheesman and Chatfield reservoirs. Minimal effects on bald eagle. No effect to other species.	Compliance with the Endangered Species Act and Biological Opinion (BO) issued by the US Fish & Wildlife Service (USFWS). Continued participation in the Platte River Recovery Implementation Program.	USFWS
<b>Aquatic Resources</b>		
More favorable winter flows would have a minor beneficial impact to fish and invertebrates in the section of the South Platte between Chatfield Reservoir and Bear Creek.	None	---
<b>Recreation</b>		
<b>Boating:</b> The impacts to boating on the South Platte resulting from these flow changes would be negligible. <b>Fishing:</b> Minor beneficial effect to fishing due to reduced flows.	None	---



#### **Appendix M-4**

**Moffat Collection System Project, Fish and Wildlife Enhancement Plan, Prepared for the Colorado Wildlife Commission, by Denver Water in Partnership with the Municipal Subdistrict, Northern Colorado Water Conservancy District, June 9, 2011**



# **Moffat Collection System Project**

## **Fish and Wildlife Enhancement Plan**

Prepared for:  
**The Colorado Wildlife Commission**  
In accordance with CRS 37-60-122.2

Prepared by:  
**Denver Water**

In Partnership With:  
**Municipal Subdistrict,  
Northern Colorado Water Conservancy District**

**June 9, 2011**



## **Table of Contents**

### **1.0 INTRODUCTION**

- 1.1. Enhancement Project Overview
- 1.2. Fish and Wildlife Enhancement Plan Stakeholders
- 1.3. Concurrent and Related Activities

### **2.0 ENHANCEMENTS**

- 2.1. Upper Colorado River Habitat Project
- 2.2. Implementing the Habitat Project with the Learning by Doing Cooperative Effort

### **3.0 RELATIONSHIP TO PROJECT MITIGATION**

#### **List of Figures**

- 1 Upper Colorado River Habitat Project
- 2 Implementing the Habitat Project with Learning By Doing

#### **List of Tables**

- 1 Upper Colorado River Habitat Project Funding

#### **Appendix**

- A Summary of the Proposed Colorado River Cooperative Agreement  
Proposed Learning by Doing IGA



## **1.0 INTRODUCTION**

### **1.1 Enhancement Project Overview**

The City and County of Denver, acting by and through its Board of Water Commissioners (Denver Water) is proposing to construct the Moffat Collection System Project (Moffat Project), a project designed to provide 18,000 acre-feet (AF) per year of new water supply to Denver Water's customers. Denver Water proposes to enlarge its existing 42,000-AF Gross Reservoir, which is located in Boulder County, Colorado approximately 35 miles northwest of Denver and 6 miles southwest of the city of Boulder. Gross Dam would be raised 125 feet to provide an additional 72,000 AF of reservoir storage.

Pursuant to CRS 37-60-122.2(1), Denver Water and the Municipal Subdistrict, Northern Colorado Water Conservancy District, acting by and through the Windy Gap Firing Project (WGFP) Water Activity Enterprise (Subdistrict) have agreed to participate with the Colorado Department of Natural Resources (DNR) and Colorado Division of Wildlife (CDOW) in concurrent development of Fish and Wildlife Mitigation Plans (FWMPs) for the Subdistrict's WGFP and Denver Water's Moffat Project. In addition to the concurrent FWMPs, Denver Water and the Subdistrict have decided to submit to the CDOW enhancement plans to improve existing fish and wildlife resources. These Enhancement Plans are submitted pursuant to regulations implementing CRS 37-60-122.2(2) and are intended to enhance fish and wildlife resources over and above the levels existing without the Moffat Project and WGFP. Denver Water and the Subdistrict are submitting their Enhancement Plans simultaneously with their FWMPs.

Denver Water is also providing the Wildlife Commission with a copy of the proposed "Learning by Doing" (LBD) Cooperative Effort Intergovernmental Agreement (IGA), which was developed as part of the proposed mediation agreement between the West Slope entities and Denver Water. In the mediation agreement (which is also referred to as the Proposed Colorado River Cooperative Agreement), Denver Water has committed to provide money for habitat improvements, water for environmental flows, and considerable system flexibility to provide flushing flows, all directed towards enhancing the current stream conditions and aquatic habitat in Grand County. The LBD effort, along with these mediation commitments, can provide considerable additional benefits to fish and wildlife resources.

### **1.2 Fish and Wildlife Enhancement Plan Stakeholders**

Denver Water has been consulting and conferring with a broad range of federal and state agencies, as well as local governments and environmental groups, to solicit input on desired enhancements to existing fish and wildlife resources. These entities include:

- Governmental organizations: CDOW, Northern Water Conservancy District, Grand County, and Town of Hot Sulphur Springs
- Non-governmental organizations: Trout Unlimited and landowners along the upper Colorado River and in the Fraser River Basin

Although the CRS 37-60-122.2 procedures do not specify public involvement requirements, Denver Water and the Subdistrict acknowledge the Colorado Wildlife Commission's desire to provide ample opportunity for public participation. To date, the Wildlife Commission has provided the following opportunities for the public to provide mitigation and enhancement suggestions:

- Stakeholder Workshops, January 24-25, 2011, Winter Park – CDOW solicited input on options for fixing the upper Colorado River between Windy Gap and the Kemp-Breeze State Wildlife Area to ensure a functioning river that supports fish and wildlife resources given anticipated future flows.
- Public Comment Period on Draft Enhancement and Mitigation Plans, Feb. 10-24, 2011 – CDOW invited public review and comment on the February 9<sup>th</sup> draft plans. The input was reviewed by CDOW, Denver Water and the Subdistrict while preparing the April 7<sup>th</sup> plans.
- Wildlife Commission Meeting, March 10, 2011 – Members of the public provided comments on the draft February 9<sup>th</sup> plans and review process.
- Wildlife Commission Meeting, May 6, 2011 – Members of the public provided comments on the April 7<sup>th</sup> plans submitted to the Wildlife Commission on April 7, 2011. Time was also allowed for presentations from several groups on issues regarding the plans.

### **1.3 Concurrent and Related Activities**

#### **Windy Gap Firming Project**

The Windy Gap Firming Project (WGFP) is a proposed water supply project that would provide more reliable water deliveries to Front Range and West Slope communities and industries. The Subdistrict is seeking to construct the project on behalf of the 13 WGFP Participants. Project Participants include the City and County of Broomfield, the towns of Erie and Superior, the cities of Evans, Fort Lupton, Greeley, Lafayette, Longmont, Louisville, Loveland, Little Thompson Water District, Central Weld County Water District, and the Platte River Power Authority.

The proposed WGFP is to add water storage and related facilities to the existing Windy Gap operations capable of delivering a firm annual yield of about 30,000 AF to Project Participants. The Subdistrict's Proposed Action is the construction of Chimney Hollow Reservoir to store Windy Gap Project water. The WGFP Draft EIS was issued by the U.S. Bureau of Reclamation (Bureau) in 2008.

The Moffat Project would increase diversions from the Fraser River Basin upstream of the Windy Gap Project diversion site on the Colorado River and would affect the availability of water for the WGFP. Diversions for the WGFP and Moffat Project would result in changes to flows in the Colorado River below the Windy Gap dam. Denver Water and the Subdistrict have agreed to cooperate with each other and with the DNR and CDOW in concurrent development of the mitigation plans required under CRS 37-60-122.2 for the two projects. They have jointly developed stream temperature monitoring stations as mitigation (refer to the Moffat Project FWMP). Additionally,



Denver Water and the Subdistrict have proposed enhancements with significant resources and funding to improve current conditions in the river.

## **2.0 ENHANCEMENTS**

### **2.1 Upper Colorado River Habitat Project**

The Upper Colorado River Habitat Project (Habitat Project) was designed in coordination with the Subdistrict to address concerns raised by CDOW and other stakeholders regarding the current conditions of the aquatic ecosystem in the Colorado River downstream of Windy Gap. CDOW studies have identified a decline in populations of *Pteronarcys californica* (giant stonefly), which, historically, has been a major source of food for trout in the Colorado River as well as other species of stoneflies and mayflies. Populations of the mottled sculpin (*Cottus bairdi*), a native fish that is also an important food source for trout and shares habitat with the *Pteronarcys*, have also declined. CDOW believes that riffle areas below the Windy Gap Reservoir have been altered by changes in flow regime, water depletions, sedimentation, and armoring of the channel bed. Trout populations between Windy Gap and Kremmling have declined. CDOW has expressed a desire to return the river to a more functional system considering current and future hydrology.

The goal of the Habitat Project is to design and implement a stream restoration program to improve the existing aquatic environment from the Windy Gap Diversion to the lower terminus of the Kemp-Breeze State Wildlife Area (Segment). Refer to Figure 1. The intent is for Denver Water and the Subdistrict to join with the CDOW, along with other stakeholders, in a cooperative effort to identify and address desired improvements to the stream environment.

#### Resources for the Project

- A. Funds Provided by Denver Water. To implement the Habitat Project, Denver Water will provide \$1.5 million.
- B. Funds Provided by Subdistrict. To implement the Habitat Project, the Subdistrict will provide \$3.0 million.
- C. Possible Funds from CDOW. In addition to designing the Habitat Project, CDOW may contribute \$500,000 to implement the Habitat Project.
- D. Possible Funds Provided by Learning by Doing. Denver Water and the Subdistrict will participate in the LBD Cooperative Effort, which is described in Section 2.2. In the LBD Cooperative Effort, Denver Water has committed money for habitat improvements, water for environmental flows, and considerable system flexibility to provide flushing flows, all directed towards enhancing the aquatic environment in Grand County (refer to Appendix A for details). Denver Water and the Subdistrict, as two members of the six-member Management Committee, will work with the other members of the committee to dedicate an additional \$1 million (from the funds committed to

LBD by Denver Water) to the Habitat Project, in addition to the amounts committed by Denver Water and the Subdistrict in paragraphs A and B above.

- E. Possible Matching Funds. Denver Water and Subdistrict have committed \$4.5 million for the Habitat Project described in A and B above and, as described below (Use of Funds), preference will be given to land that has public access. However, \$1.0 million of this amount is available as matching funds for private landowners to perform additional work in the Colorado River in areas of private land.
- F. Other Funding and Resources. If the Habitat Project participants desire additional resources beyond the \$6.0 million described above, the project participants will work with other stakeholders and granting agencies to seek other sources of funding (a possible source of funding is matching funds as described in E above). In addition, Denver Water and the Subdistrict will contribute in-kind resources such as labor, equipment, and materials if and when available as determined by Denver Water and the Subdistrict, to help maximize the value of funds described above. In addition, CDOW has indicated a willingness to provide in-house expertise and resources for stream restoration design.
- G. Future Funding/Enhancement Insurance Policy. The Subdistrict and Denver Water will contribute \$1.0 million and \$500,000, respectively, for a total of \$1.5 million to a fund to be used for adaptive management and/or maintenance in the Habitat Project segment. Adaptive Management in this case means that the \$1.5 million will be available to adjust elements of the stream restoration efforts that are not functioning as designed.

The funding for the Habitat Project is summarized in Table 1.

**Table 1. Upper Colorado River Habitat Project Funding**

<b><u>Source of Funding (Habitat Project)</u></b>	<b><u>Amount (millions of \$)</u></b>	
Denver Water	\$1.5	
Subdistrict	\$3.0	
CDOW	\$0.5	Contingent upon CDOW approval
LBD	\$1.0	Contingent upon LBD approval
Subtotal	\$6.0	
<b><u>Source of Funding (Future Funding)</u></b>		
Denver Water	\$0.5	
Subdistrict	\$1.0	
Subtotal	\$1.5	
<b><u>Total</u></b>	<b><u>\$7.5</u></b>	

Use of Funds. The public funds described above will be used for the Habitat Project to restore the Segment on public land. However, the public stream reaches are interrupted by reaches of private land. The effectiveness of habitat restoration work and overall stream health will be compromised if there is not some degree of stream enhancement continuity for the entire Segment. While preference will be given to work on public lands, public funds may be used for stream restoration on private land to provide continuity and prevent harm to the Habitat Project as a whole if CDOW determines that such work on private lands will provide benefits to the entire Grand County stream reach, and/or through a program of matching private funds with public funds. Proposed work on private land within the Segment will be developed in cooperation with the project participants and the land owner to ensure maximum benefit to the health of the river.

Any funds remaining after implementation of the Habitat Project will be used for additional projects to improve the aquatic environment on the Colorado River. Additional projects could include maintenance activities, a bypass around Windy Gap Reservoir or continuing stream improvements downstream to the confluence with Troublesome Creek (the lower terminus of the Gold Medal fishery designation). Other projects would be identified and agreed upon by the project participants.

Effective Date. The Habitat Project will commence when the Subdistrict and Denver Water have received acceptable Records of Decision and permits for their respective projects and have begun final design and construction activities. If a permit is appealed, the Habitat Project will commence after final resolution of the appeal and acceptance of the resolution by the Subdistrict and Denver Water.

Project Implementation. The Habitat Project will be implemented in collaboration with the LBD Cooperative Effort to ensure consistency and coordination with the overall stream enhancement efforts in Grand County. Section 2.2 describes the implementation of the Habitat Project and the goals and management structure of LBD.

## **2.2 Implementing the Habitat Project with the Learning by Doing Cooperative Effort**

The Habitat Project will be implemented through an IGA among Denver Water, the Subdistrict, and CDOW. Denver Water and the Subdistrict will convey the committed dollars to CDOW and CDOW will design and implement the project. CDOW will also enter into any agreements, as needed, with private land owners or other funding sources. Additionally, the Habitat Project will be managed by CDOW in collaboration with the Habitat Project Stream Team.

Stream Team: The contributing members of the Habitat Project Stream Team include:

- Denver Water
- Subdistrict
- CDOW
- Grand County
- Other Parties that contribute financial resources to the Habitat Project, including but not limited to landowners

Advisory Team: Interested parties not contributing resources, including Trout Unlimited and landowners.

Implementation of Habitat Project: The Habitat Project will be managed by the Habitat Project Stream Team with advice from the Advisory Team. The Stream Team will make good faith efforts to resolve any conflicts. If the good faith effort does not result in consensus, the Habitat Project Stream Team will refer the issue to the Director of the DNR for resolution. Prior to referral, the unresolved issue will be summarized in writing with an explanation of any “competing views” and efforts to date to resolve the matter.

The Habitat Project will likely consist of several phases:

- *Project Goals* – The Stream Team will begin by setting specific goals for the Habitat Project to promote functionality of the river system. Goals may include specific biological goals related to health of the aquatic ecosystem, including fish and macroinvertebrates (e.g. trout, *Pteronarcys* and sculpin). The Habitat Project goals will be consistent with the LBD Effort and the SMP.
- *Project Design* – The Team will evaluate the most effective and sustainable restoration opportunities for the Segment. Different designs or solutions may be appropriate and implemented for different parts of the Segment. The Team will evaluate restoration opportunities based on site-specific field evaluations, data from the SMP, and the specific objectives for a given reach.
- *Implementation* – The Team will prioritize proposed habitat improvements, as well as allocation of funding for public and privately-owned stream segments. The Habitat Project will be implemented over time as stream reaches are prioritized and designs are completed. The CDOW will be responsible for the final design, permitting and implementation of the stream restoration activities.
- *Monitoring* – The Team will determine the appropriate monitoring activities to measure outcomes from implementing the Habitat Project taking into consideration monitoring already in place or proposed as part of the LBD Effort. The CDOW will be responsible for the long-term monitoring and maintenance of the stream restoration activities.

## **Learning by Doing Cooperative Effort**

The Habitat Project will be coordinated with the Learning by Doing Cooperative Effort to ensure consistency and coordination with the overall stream enhancement efforts in Grand County.

Denver Water and Grand County have spent over three years working cooperatively to resolve issues related to Denver Water's existing operations in Grand County. Denver Water and Grand County reached a proposed agreement on September 24, 2010 regarding Denver Water's commitments to enhance existing conditions in Grand County. Denver Water and Grand County are currently working with the State to assure that the benefits of Denver Water's commitments can be delivered and protected under Colorado's water rights system. Grand County Commissioners will also conduct a public process to gather input from county residents and other interested parties on the proposed agreement prior to a formal vote by the Commissioners on the agreement. A major component of the proposed agreement is the LBD Cooperative Effort. This is a cooperative, iterative and ongoing process to maintain, and when reasonably possible, restore or enhance the stream environment in the Fraser and Williams Fork river basins, and in the mainstem of the Colorado River from the outflow of Granby Reservoir to its confluence with the Blue River.

The Subdistrict has also been working cooperatively with Grand County and other West Slope stakeholders to develop an IGA regarding additional enhancements to existing conditions in Grand County. The IGA has not been completed, but the Subdistrict has committed to participate in the proposed LBD Cooperative Effort.

The Grand County Stream Management Plan (SMP) is the framework for the overall LBD Cooperative Effort. The SMP will be used as a "living" document that will be revised as additional monitoring data are gathered and as management goals for each stream reach are agreed upon. Types of restoration opportunities include channel bank revegetation, enhancing fish passage, applying enhancement flows to existing low and/or high flow conditions, and in-stream habitat restoration.

The LBD Effort will be implemented with the following management structure, as shown in Figure 2.

**Management Committee:** The LBD Cooperative Effort will be managed by representatives of the public entities contributing resources to the various activities and projects undertaken by the group. Resources are defined as funding, water, project design, and/or equipment and manpower to implement a project. The Management Committee will operate by consensus (unanimous vote) under the LBD Cooperative Effort IGA. A copy of the proposed IGA is included in Appendix A of this Enhancement Plan. The Management Committee will include one representative from:

- Denver Water
- Northern Colorado Water Conservancy District, Subdistrict
- Grand County

- Colorado River Water Conservation District
- Middle Park Water Conservancy District
- Trout Unlimited

The Management Committee may elect to invite others to participate as members of the Management Committee based on commitments to long-term contributions of funding or other tangible resources that will further the goals of the LBD Cooperative Effort. It is anticipated that CDOW will be invited to join the Management Committee if the LBD Cooperative Effort is signed by all the parties.

Advisory Committee: The Management Committee may request participation by other parties, such as representatives from environmental, recreational, governmental and agricultural interests, to provide expertise and technical advice. It is anticipated that the U.S. Forest Service and others, would be invited to be advisors.

Responsibilities – The responsibilities of the Management Committee, with input and assistance from the Advisory Committee, include:

- *Monitoring Plan* – A long-term monitoring plan will be developed and implemented to identify critical stream reaches and assign priorities for actions; identify changes in the aquatic environment; evaluate effectiveness of actions taken, and modify and refine strategies for achieving the goals of the LBD Cooperative Effort.
- *Operations Plan* – As stream reaches are prioritized and projects identified, the Management Committee will develop an annual Operations Plan to maximize the stream environmental benefits with the available resources such as water commitments, system flexibility and funding. The Management Committee will meet as frequently as necessary to explore opportunities to coordinate operations of all diversion structures and reservoir releases among all water users in Grand County.
- *Enhancements* – Denver Water committed in the proposed mediation agreement to provide substantial resources of money, water and system flexibility for the purpose of maintaining, restoring or enhancing the Upper Colorado, Fraser and Upper Williams Fork watersheds. Additional resources can be contributed by other parties to implement the LBD Cooperative Effort.
- *Annual Review* – The entire LBD Cooperative Effort, inclusive of coordinated operations, stream reach prioritization, stream improvement projects and monitoring programs, will be reviewed annually by the Management Committee in refining and updating the plans and projects.

## **Stream Projects**

The Management Committee, with input from the Advisory Committee, will prioritize stream reaches for implementing stream improvement projects.

Stream Team: A specific stream project, as prioritized by the Management Committee, will be managed by a "Stream Team" comprised of organizations or individuals that have committed resources to that specific project. Resources are defined as funding, water, project design, and/or equipment and manpower to implement a specific project. Each Stream Team will consist of representatives of the Management Committee, who will be contributing resources, to ensure consistency and continuity with the LBD Cooperative Effort, plus any other contributing members. Each Stream Team will only develop and implement enhancement projects that support the goals and priorities of the LBD Effort. Private landowners who contribute resources would be invited to participate on the Stream Team for their respective segment of the river. These landowners would approve any projects proposed by the Stream Team on property they own.

Advisory Team: The Stream Team will invite other interested parties such as representatives from environmental, recreational, governmental and agricultural interests, to serve as technical advisors on a particular project.

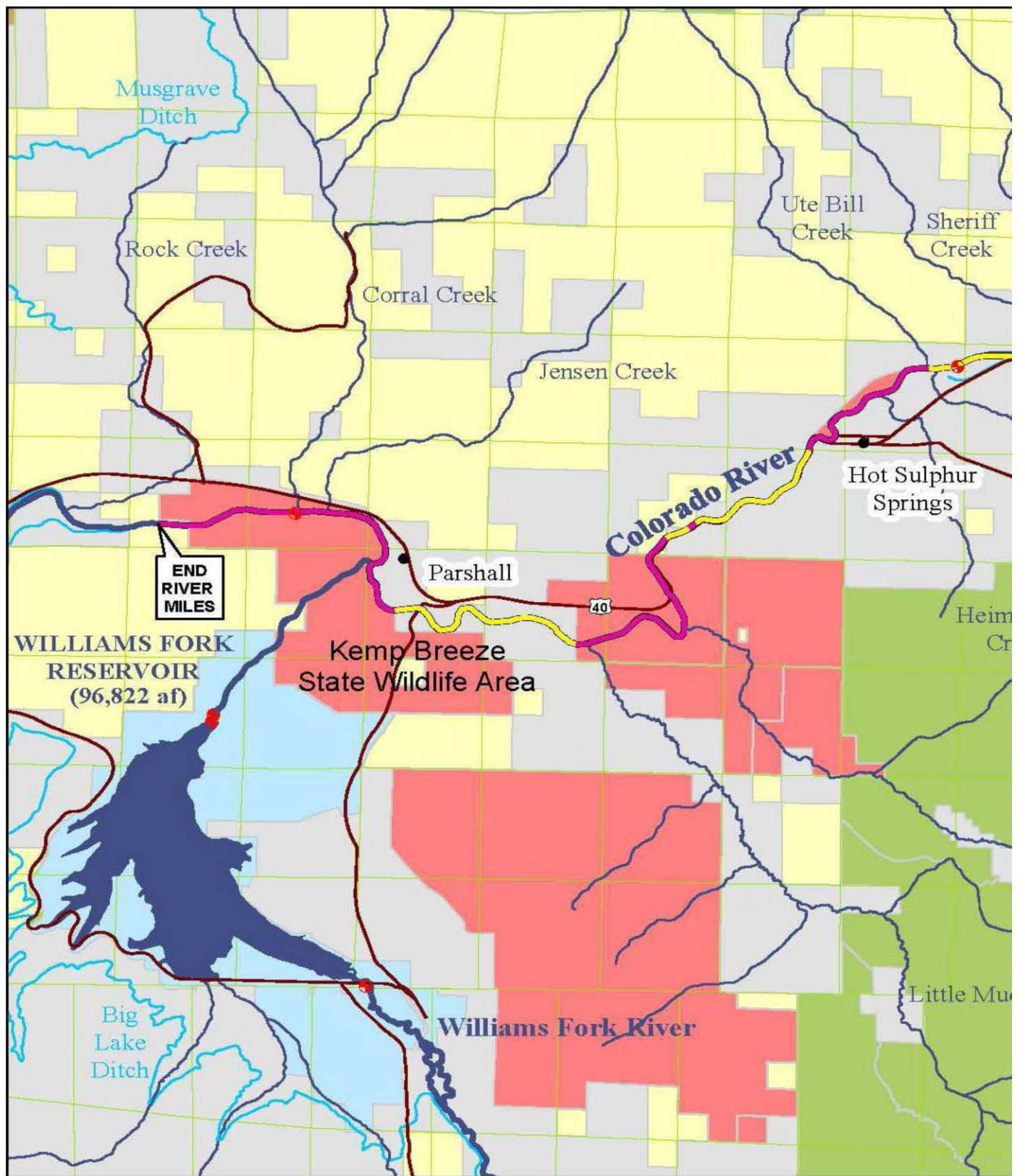
### **3.0 RELATIONSHIP TO PROJECT MITIGATION**

Both Denver Water and the Subdistrict will comply with all mitigation measures required in the permits for their respective projects, Moffat Project and WGFP. Compliance with the mitigation measures in permits will be the sole responsibility of the permittee (i.e., Denver Water and the Subdistrict). However, Denver Water and the Subdistrict are members of the Management Committee, and will collaborate, to the extent practicable, to implement the mitigation measures in a manner consistent with the objectives of the LBD Cooperative Effort and specific Stream Team efforts.

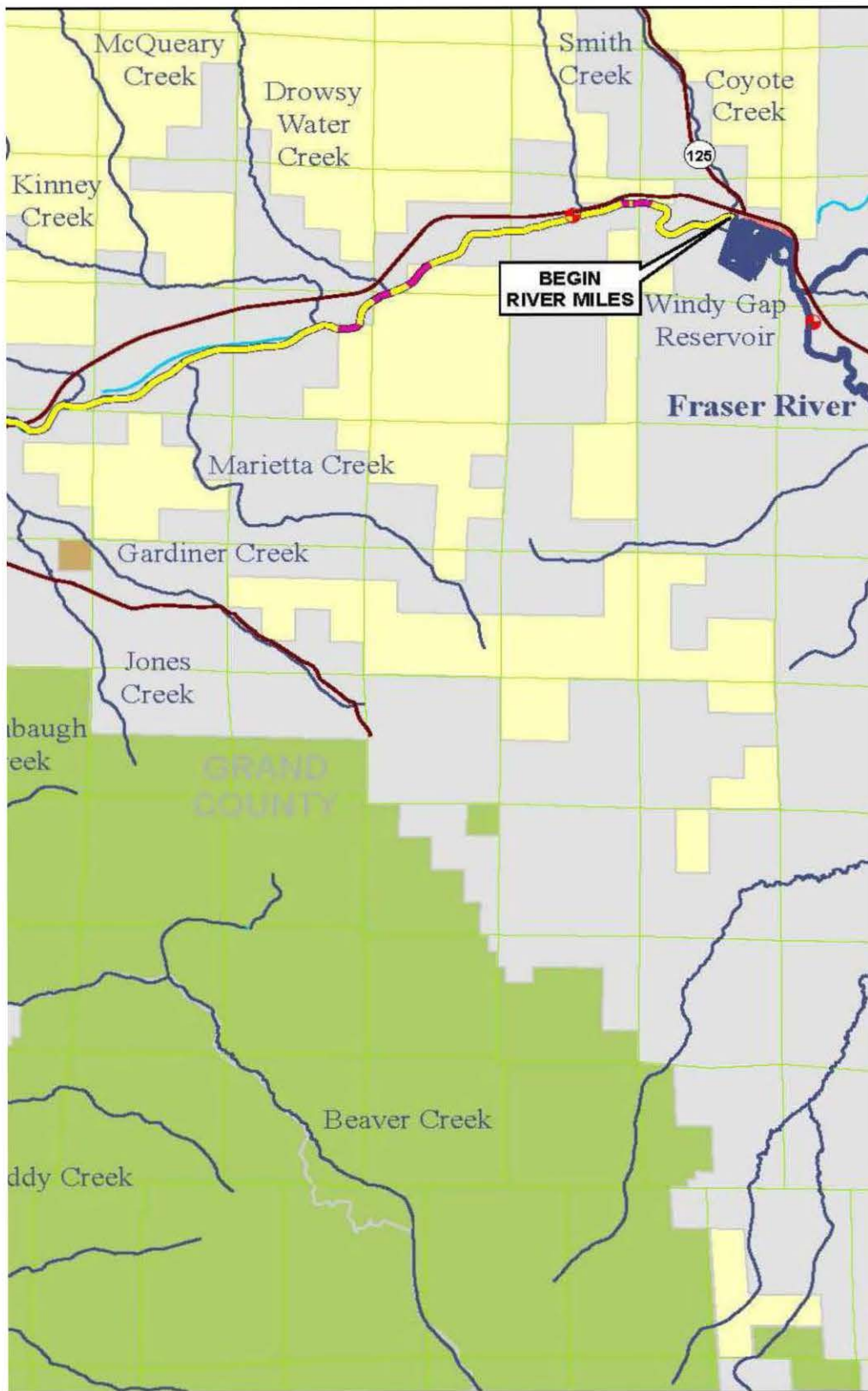
The stream enhancement cooperative efforts, such as the Upper Colorado River Habitat Project and the LBD, are efforts to enhance the existing environment and are not intended to substitute for any mitigation required by the federal agencies for the projects. The goal is to coordinate the application of any required mitigation efforts with the voluntary and collaborative efforts of the stream enhancement projects to assure the maximum benefit for the stream environment.

Denver Water and the Subdistrict will enter into a binding agreement with CDOW for the Habitat Project, as described in section 2.1. If the Corps or the Bureau requires aquatic mitigation in the Segment, some or all of the committed resources listed in Table 1 will be enforceable through conditions in the permits rather than within the Habitat Project. The Habitat Project will be implemented in a manner that complements any mitigation measures required by the Corps for the Moffat Project or by the Bureau for the WGFP.





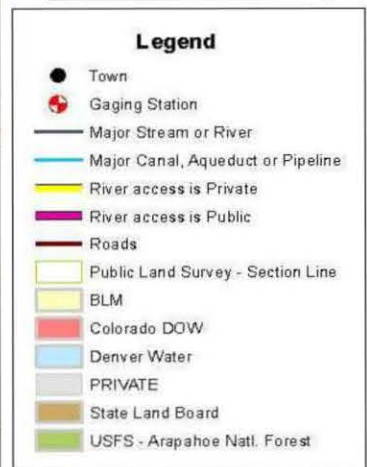




Upper  
Colorado  
River  
Vicinity

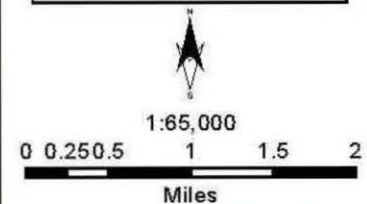
Windy Gap  
to  
Williams Fork  
River

FIGURE 1



Total river miles from  
Windy Gap Reservoir  
to the West end of  
Kemp Breeze SWA is 16.70.

Additional adjacent land-use totals:  
Private = 9.40  
Public = 7.30



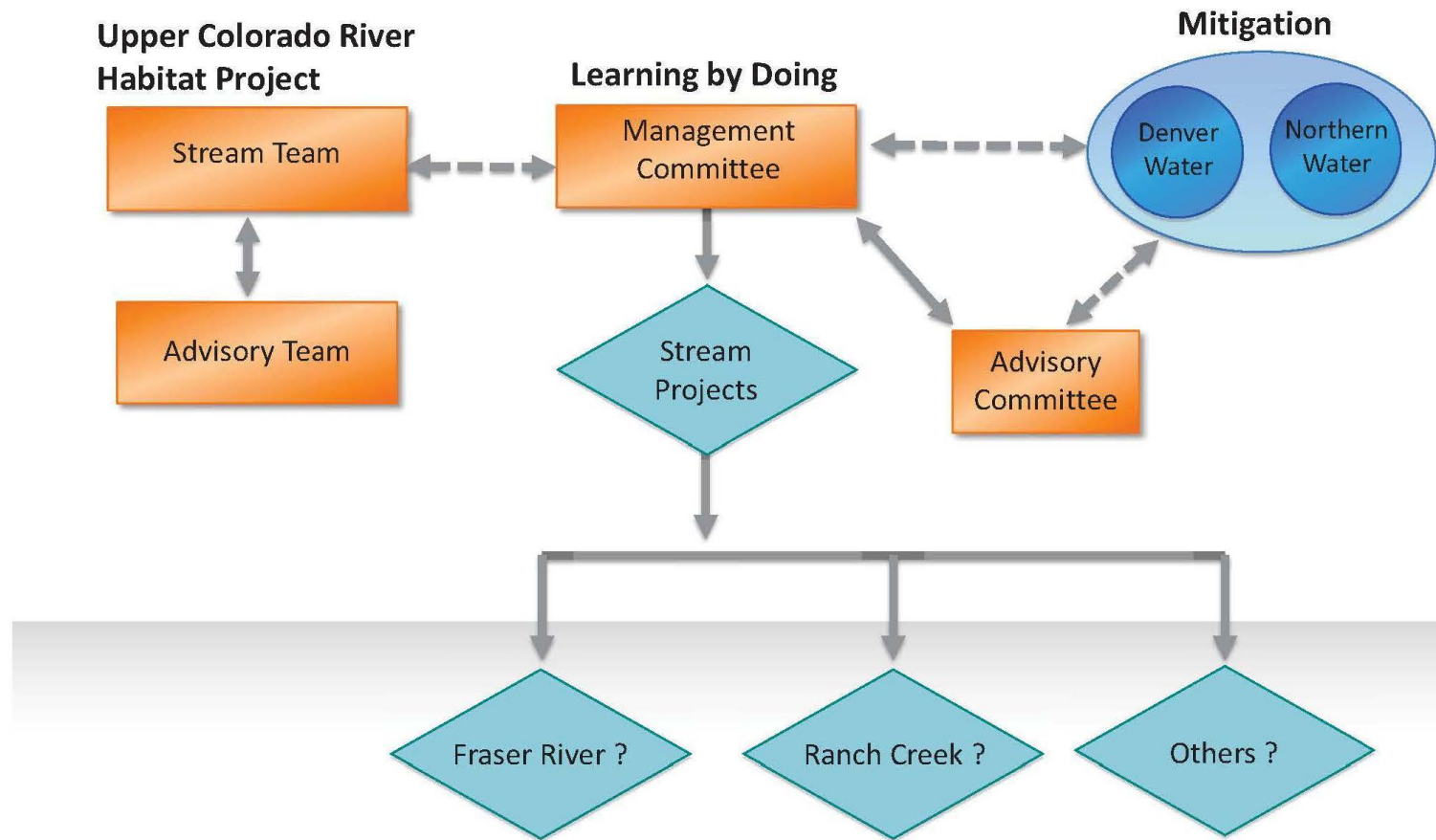
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Land ownership compiled by the Natural Resources Ecology Lab (NREL) at Colorado State University, Fort Collins, CO as CO Map 17.

Theobald, D.M., G. Winkler, S.E. Liles, W. Peterson, and M. Laval. 2008. Colorado Ownership Management and Protection of Database. Human Dimensions of Natural Resources and Natural Resources Ecology Lab, Colorado State University, Fort Collins, CO. 15 September. [www.nrel.colostate.edu/projects/ownership](http://www.nrel.colostate.edu/projects/ownership)

March 2011  
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**Figure 2. Implementing the Habitat Project with Learning by Doing**

## **Summary of the Proposed Colorado River Cooperative Agreement**

As part of negotiations between West Slope parties and Denver Water, Grand County and Denver Water have reached a proposed agreement that addresses some of the issues related to Denver Water's existing operations in Grand County. In the Proposed Colorado River Cooperative Agreement (proposed agreement), Denver Water has committed to the LBD Cooperative Effort and the following resources to provide environmental enhancements to benefit the aquatic environment in the Fraser, Williams Fork and upper Colorado rivers. A copy of the proposed LBD IGA is included in this Appendix. Denver Water and Grand County are currently working with the State to assure that the benefits of the commitments can be delivered and protected under Colorado's water rights system. Also, the Grand County Commissioners are conducting a public process about the proposed agreement, including LBD, to allow the citizens of Grand County and other interested parties to comment on the agreement prior to the Commissioners considering approval of the agreement. Under the proposed agreement, the following assets will be provided by Denver Water.

- \$2,000,000 to address nutrient loading. If the Mitigation Plan required in the permitting process for the Moffat Project mandates funds for this purpose, then this \$2,000,000 would be proportionately reduced.
- \$1,000,000 for aquatic habitat improvements. For example, this money could be applied to the Upper Colorado River Habitat Project.
- A second \$1,000,000 for aquatic habitat improvements. If the Mitigation Plan required in the permitting process for the Moffat Project mandates funds for this purpose, then this \$1,000,000 would be proportionately reduced.
- Operation of and \$50,000 contribution to construction of the Berthoud Pass sediment basin
- \$2,000,000 for future environmental enhancements
- \$1,000,000 to contribute to the costs of pumping Windy Gap water for environmental purposes
- 1,000 acre-feet annually of bypass water from the Fraser Collection System for environmental purposes
- Up to 1,000 acre-feet annually of releases from Williams Fork Reservoir and 2,500 acre-feet of carry over storage in Williams Fork Reservoir for environmental purposes
- Agree to not reduce USFS bypass flows during a drought unless Denver Water has banned all residential lawn watering in its service area (Denver Water has never banned residential lawn watering).
- Agree to a joint study to determine how best Denver Water's rights in Rich, Hammond no.1 and Big Lake ditches can be used to enhance stream flows and maximize environmental benefits
- Agree to a joint study of Denver Water lands in Grand County to identify those lands that could be set aside for wildlife habitat and public fishing access

With regard to impacts caused by the future operation of the Moffat Project, Denver Water agreed to abide by the mitigation requirements that would be required by the U.S. Army Corps of Engineers in the Section 404 permit for the project.



## **INTERGOVERNMENTAL AGREEMENT FOR THE LEARNING BY DOING COOPERATIVE EFFORT**

This Intergovernmental Agreement (Agreement) is entered into between the CITY AND COUNTY OF DENVER, acting by and through its BOARD OF WATER COMMISSIONERS (Board); GRAND COUNTY BOARD OF COUNTY COMMISSIONERS (Grand County) MIDDLE PARK WATER CONSERVANCY DISTRICT (Middle Park) and COLORADO RIVER WATER CONSERVATION DISTRICT (River District), collectively, the "parties."

WHEREAS, the Board, Grand County, Middle Park, and the River District desire to engage in a cooperative, iterative and on-going process (Cooperative Effort) to maintain, and when reasonably possible, restore or enhance the aquatic environment in the Fraser and Williams Fork River Basins and in the mainstem of the Colorado River from the outflow of Windy Gap Reservoir to its confluence with the Blue River (the Cooperative Effort Area); and

WHEREAS, in addition to other data and information, this Cooperative Effort will rely on the information contained in the draft Grand County Stream Management Plan (SMP). The current draft SMP is dated August 2010, but the parties anticipate that the SMP will evolve over time with the addition of real time information and data; and

WHEREAS, this Cooperative Effort is intended to address impacts that may be associated with existing operations by the Board, Grand County and other water users in the Cooperative Effort Area. Any new impacts to the aquatic environment projected to be caused by the Board's proposed Moffat Project will be addressed by mitigation plans to be developed by regulatory agencies as part of the permitting process for the Moffat Project; and

WHEREAS, the parties to this Cooperative Effort will develop a process to monitor the stream conditions to identify and respond to potential changes in or desired improvements to the aquatic environment, based upon the concepts embodied in this Agreement; and

WHEREAS, the Cooperative Effort will allow the participants to identify and react to changes in the aquatic environment in a manner that maximizes the benefits to be realized from the defined resources available to the entities, and that minimizes adverse changes to the aquatic environment whenever possible; and

WHEREAS, the parties are authorized to enter into this Agreement by, *inter alia*, Section 29-1-201, *et seq.*, C.R.S.; Section 29-10-101, *et seq.*, C.R.S.; and Article XIV, Section 18(2) of the Colorado Constitution.

NOW THEREFORE, the parties agree to implement this Cooperative Effort in accordance with the following provisions:

### **I. Guiding Principles**

The overarching goal for the Cooperative Effort is to maintain and, where reasonably possible, restore or enhance the condition of the aquatic environment in Grand County. The Upper

Colorado River system and the Fraser and Williams Fork rivers serve as a critical municipal, agricultural, recreational and industrial water supply source for the state as a whole and provide important aquatic habitat. The participants in the Cooperative Effort have a mutual interest in protecting the aquatic environment and commit to work together in a cooperative and comprehensive manner to address issues related to maintaining and, when reasonably possible, enhancing the condition of the aquatic environment in Grand County. To that end, the parties agree to the following principles to build and promote a stable, permanent, relationship that respects the interests and legal responsibilities of the parties, while achieving the goals of the Cooperative Effort.

- A. The Cooperative Effort will not seek a culprit for changes in the condition of the stream, but will provide a mechanism to identify issues of concern and focus available resources to address those issues.
- B. The parties to this Agreement have been involved since 2007, along with numerous other West Slope entities, in negotiating the Colorado River Cooperative Agreement (CRCA) to resolve longstanding issues. The Board has committed to Grand County a substantial, but defined amount of resources described in Article III.E of the CRCA for the purpose of maintaining, restoring or enhancing the Upper Colorado, Fraser and Williams Fork watersheds. Grand County commits to using the resources provided under Article III.E of the CRCA for the sole purpose of implementing the Cooperative Effort. In addition, Grand County, Middle Park and the River District agree to contribute resources to the Cooperative Effort on an ongoing basis, as available and appropriate. Because resources available to the Parties are limited, the use of those resources will be prioritized as part of the Cooperative Effort. Grand County agrees, consistent with the provisions of Article III.E.9 of the CRCA, that amounts in excess of \$2 million in the WG Pumping Fund will be dedicated to the Cooperative Effort.
- C. The Cooperative Effort does not constitute mitigation for the Moffat Project. The Board agrees to undertake all mitigation measures related to Grand County (Mitigation Measures) required in the permit for the Moffat Project to be issued by the Corps of Engineers (COE). The parties to the Cooperative Effort agree not to pursue a challenge to the Mitigation Measures described in the COE permit for the Moffat Project. All the parties to the Cooperative Effort will work in good faith to implement the Cooperative Effort in a way that complements the Mitigation Measures.
- D. If the Management Committee desires additional resources beyond the Grand County Article III.E resources, and resources contributed by Middle Park, Grand County and the River District, to implement the Cooperative Effort, the parties will work with other stakeholders and granting agencies, and identify other sources of funding to provide additional resources. If mutually defined additional resources are still desired, the parties may agree to consider contributing more of their own resources on a case-by-case basis and within the context of the other principles listed herein. Each party retains its sole discretion whether to provide any additional resources without future judgment or prejudice by the other parties.

- E. The parties to this Agreement agree that active participation in the Cooperative Effort by the Board will commence after Issuance and Acceptance by the Board of Permits Necessary for the Moffat Project, as defined in the CRCA. Prior to the issuance and acceptance of permits, the parties agree that they will continue to work together on completing and improving the draft SMP.
- F. The parties acknowledge that actions not the subject of other contractual obligations that would impair a party's ability to meet its water supply commitments will not be undertaken as part of the Cooperative Effort, unless agreed to voluntarily by the owner of the water supply.
- G. For a period of five years from the date of the first diversions into the constructed Moffat Project, no party will unilaterally request, or cause others to request, that the COE or other applicable regulatory agencies reopen a permit or license for the Moffat Project for any reason. Each party reserves the right to oppose any such efforts to reopen the permits or licenses for the Moffat Project.

## **II. The Cooperative Effort**

### **A. Organization.**

1. **Management Committee.** The parties will form a Management Committee within six months after this Agreement becomes effective.
2. **Representation.** The initial Management Committee will comprise five members, one representative each from Grand County, the Board, the River District, Middle Park, and Trout Unlimited. If Grand County and Northern Colorado Water Conservancy District (Northern Water), and the Municipal Subdistrict of the Northern Colorado Water Conservancy District (Subdistrict) enter into an agreement similar to this agreement, the Management Committee will be expanded by one to accommodate a representative from Northern Water or the Subdistrict. The Management Committee may decide to invite others to be members, such as representatives from agricultural, environmental, recreational, industrial, and governmental interests. It is anticipated that the Colorado Division of Parks and Wildlife will be invited to be a member of the Management Committee and the United States Forest Service will be invited to play an advisory role in the Management Committee. Any decision to add other members to the Management Committee will be by consensus, with consideration being given to the resources and contributions other potential members may provide to the Cooperative Effort.
3. **Decision-making.** The Management Committee will operate by consensus. The Management Committee will make a good faith effort to resolve any issues. If the good faith effort does not result in consensus, the Management Committee will implement the Conflict Resolution process.



4. **Organizational Structure.** The Management Committee may establish a not-for-profit organization to implement the Cooperative Effort if it determines that such a vehicle is the most effective means for accomplishing its objectives.

**B. Tasks and Responsibilities.** The following are expected under the Cooperative Effort:

1. **Continue to Improve the Grand County Stream Management Plan.** Phase 1, 2, and 3 of the draft SMP have been completed. The parties will continue to adapt and improve the draft SMP cooperatively as additional information is developed, the understanding of desired stream conditions is better defined, and the management goals for each stream reach are agreed upon.
2. **Management Goals and Priorities.** The Management Committee will define the management goals for each stream reach of interest. By way of example, one reach may be managed to increase the fishing experience for rainbow trout, while another reach may be managed for a specific stream characteristic such as macro-invertebrate diversity. Which management goals are practicable for a specific reach could be influenced by the resources available for use in that reach. It is expected that the Management Committee might also define secondary management goals for specific reaches. Once the management goals for the stream reaches are agreed upon, the Management Committee will prioritize the reaches based upon the agreed upon management goals, the desired stream conditions for each reach, and the available resources.
3. **Coordinate with the COE.** If applicable, the Management Committee may work with the COE to coordinate, to the extent practicable, Mitigation Measures for the Moffat Project with the management goals, priorities and projects undertaken as part of the Cooperative Effort. The Management Committee will work to ensure that the Board is not required to engage in duplicative or conflicting actions, nor implement measures that do not accomplish their stated benefits.
4. **Water Quality Standards.** CDPHE has listed several stream reaches in the Cooperative Effort Area on the 2010 303d list of impaired waters. The Cooperative Effort will participate in developing the appropriate management actions for these segments.
5. **Monitoring Plan.** The ability to fully identify cause and effect relationships in a complex aquatic environment is difficult. Therefore, the parties agree to implement a monitoring plan to identify undesirable changes in, and agree upon desired modifications to, the aquatic environment, and to measure the effectiveness of actions taken to protect or improve the aquatic environment.



This approach will allow the available resources to be focused on avoiding problems, responding to changing conditions, and achieving agreed-upon goals. The Cooperative Effort will rely on existing data and new data gathering under existing programs to provide the primary source of information for designing the management goals and for prioritizing those goals and reaches where the goals will be applied. The Management Committee can initiate additional monitoring, data gathering and analysis, and may choose to focus on specific measurable indicators, as circumstances warrant, to guide in applying the resources and to monitor the effectiveness of the resources in meeting a management goal. The principles of the potential monitoring plan are described in Attachment A.

6. **Implementation.** The Management Committee will review the results of monitoring to evaluate the effectiveness of the Cooperative Effort and of the allocation of available resources in meeting the management goals and priorities. The results of the monitoring program also may be used to identify measures that might be desirable to maintain or improve the stream environment.
7. **Independent Experts.** The Management Committee may retain independent experts and consultants if deemed necessary to perform the Committee's work. The cost of such independent experts and consultants shall be allocated among the parties as agreed to by the Management Committee.
8. **Operations Plan.** The Management Committee will develop an annual operations plan to maximize the stream environmental benefits of the available resources (including water commitments, system flexibility and funding). The plan will explore opportunities for coordinated operations of diversion structures and reservoir releases among all water users in Grand County, including Northern Water; the Subdistrict; the Bureau of Reclamation, the Board; Middle Park; River District; and in-county diversions for agricultural, municipal, industrial, and others uses. The purpose of coordinated operations is to allow the water users to meet the supply requirements of their systems, while maximizing the effectiveness of the Cooperative Effort. Subject to any contractual commitments regarding system operations, all water users retain sole discretion over their water supply system demands and opportunities and available system flexibility. The decisions and actions by the Management Committee in developing and implementing the operations plan shall take into account water rights priorities, draft SMP flow ranges as they change over time, naturally occurring hydrologic conditions, recreational flow needs, CWCB instream flows, and the results of monitoring.
9. **Incorporate New Knowledge into Management Actions.** As the results of testing various operational changes, monitoring the effectiveness of measures, and collecting and analyzing additional data, the Management Committee will

have new information to inform its decision-making. The Management Committee will address data management and access issues in a timely fashion.

10. **Obtain and Manage Funding.** The Management Committee will explore whether the most effective use of funds made available for the benefit of the stream environment is to set up an endowment fund dedicated to the goals of the Cooperative Effort. For example, the interest from such a fund could be used as matching funds for grants. The Management Committee also will research available sources of funding for planning, monitoring and implementing measures identified during the Cooperative Effort, including, but not limited to grants, contributions, assessments, or fees on water or sewer services.
11. **Weekly Coordination.** The Management Committee will conduct weekly coordination meetings or calls from May through September or at such other times as mutually agreed by the Management Committee. The purpose of these meetings/calls is to highlight upcoming operational issues, discuss potential options to reduce possible negative impacts to the aquatic environment, and to coordinate implementation of actions under the Cooperative Effort. The Management Committee can agree to include other entities in the meetings or calls, as a general practice or as warranted. However, the other entities participating in these calls would act as advisors only unless they were providing water, usable resources, or system flexibility to a particular solution or action of the Management Committee.
12. **Annual Review and Stream Management Plan Adaptations.** The Management Committee will conduct an annual review in January or February before the next spring and summer field season to assess whether management goals are being met, evaluate the monitoring data gathered, assess the use of available resources, identify additional data and analysis needs, determine if refinements are needed to the Grand County draft SMP or the operations plan, and provide an annual summary to each of the parties.

### **III. Conflict Resolution**

The parties agree that, if the Management Committee cannot adequately address an issue to the satisfaction of one of the parties, the parties will confer in good faith and endeavor to resolve the concern.

Where the Management Committee cannot make a decision by consensus, and any single entity believes that the issue warrants mediation, the Management Committee will select a neutral third party mediator who would seek an acceptable voluntary solution to the conflict.

For conflicts that involve a technical or scientific matter, the neutral third party mediator may select an independent technical or scientific expert, acceptable to all parties, to review and make

a recommendation on the matter. If the conflict cannot be resolved through the efforts of the mediator, then the Management Committee would agree to disagree, and move forward with the other elements of the Cooperative Effort where they had reached agreement.

In the specific case of water resources committed to Grand County by Denver Water in Article III.E of the Colorado River Cooperative Agreement, if the Management Committee cannot reach consensus on the use of that water, then Grand County shall manage and control the in-stream use of the water to accomplish the purposes of the CRCA.

If the conflict cannot be resolved by the efforts of the mediator and the Management Committee is prevented from moving forward with the other aspects of the Cooperative Effort, then the parties can pursue any available legal or administrative recourse.

#### **IV. Effective Date**

This Agreement shall become effective upon the Issuance and Acceptance by the Board of Permits Necessary for the Moffat Project, as defined in the CRCA.

#### **V. Miscellaneous Provisions**

##### **A. Regulatory Action or Litigation**

In the event any person or entity files a petition to the COE, FERC or other regulatory agency for regulatory action, or commences litigation, which would materially adversely affect the Moffat Project (Adverse Action), the parties to the Cooperative Effort agree to meet and discuss in good faith the potential detrimental effect of such Adverse Action, with the goal of determining whether any action by one or more parties could avoid the Adverse Action or mitigate its impact on the affected party. Each party agrees to evaluate in good faith whether it can implement changes in its operations or undertake other efforts that would achieve this goal, and to implement any such efforts as may be agreed to by the parties. If the Moffat Project is denied an acceptable permit, or if the Board decides not to proceed with its project, then the Board shall provide notice to the parties to this Agreement within ten days of the decision and shall be released from its obligation to participate in the Cooperative Effort. Nothing in this paragraph modifies the Board's independent obligations under Article III.E of the CRCA.

##### **B. No Property Rights or Servitude**

Nothing in this Agreement shall be deemed or construed as granting or creating any property right or servitude whatsoever on any party's water rights or facilities. The foregoing sentence shall not impair the rights of any party to specific performance of this Agreement.

##### **C. No Operating Obligation**

Except for those Article III.E resources which will require operational changes, nothing in this Agreement shall be deemed or construed as creating any obligation on any party to operate its raw or treated waterworks system in any particular manner, so long as the

party complies with the terms of this Agreement. Each party retains sole and exclusive discretion concerning the operation of its system.

**D. Right of Specific Performance**

If any party shall fail to cure any default or breach of this Agreement within 120 days after receipt of notice from the non-defaulting or non-breaching party, then the non-defaulting or non-breaching party may elect to file suit, without further notice, for specific performance of this Agreement. The parties agree that the terms and conditions of this Agreement are enforceable by specific performance, and the parties hereby waive any defenses to specific performance based on the doctrine of sovereign immunity

**E. Force Majeure**

A party shall be excused from performing its obligations under this Agreement during the time and to the extent that it is prevented from performing by a cause beyond its control, provided that such nonperformance is beyond the reasonable control of, and is not due to the fault or negligence of the party not performing.

**F. Severability**

If any provision of this Agreement shall prove to be illegal, invalid, unenforceable or impossible of performance, the remainder of this Agreement shall remain in full force and effect.

**G. Assignment**

Neither this Agreement nor any of a party's rights, obligations, duties or authority hereunder may be assigned in whole or in part without the prior written consent of the other parties.

**H. Colorado Law**

This Agreement shall be construed in accordance with the laws of the state of Colorado.

**I. Termination**

This Agreement will remain in effect unless terminated in writing by all the parties.

**J. Admission of New Parties**

The original parties to this Agreement may, upon unanimous consent, admit new parties upon such terms and conditions as they determine appropriate.

ATTEST:

**CITY AND COUNTY OF DENVER,  
acting by and through its  
BOARD OF WATER COMMISSIONERS**

By: Mrs. [Signature]  
Secretary

By: [Signature]  
President

Date: 5/15/12

APPROVED:

By: [Signature]  
Director of Planning

APPROVED AS TO FORM:

By: [Signature]  
Legal Division

ATTEST:

**BOARD OF COUNTY COMMISSIONERS,  
COUNTY OF GRAND**

By: [Signature]  
Grand County Clerk and Recorder

By: Nancy Stuart  
Chairman

Date: 5/15/12

[Signature] DEPUTY CLERK

**COLORADO RIVER WATER  
CONSERVATION DISTRICT**

By: [Signature]  
President

Date: 7/15/13

**MIDDLE PARK WATER  
CONSERVANCY DISTRICT**

By: [Signature]  
President

Date: 7/17/13

## **ATTACHMENT A**

### **Monitoring Plan**

Some level of effective monitoring of the stream environment is essential to understanding and measuring success of applied prescriptions. The Management Committee will design an Aquatic Resource Monitoring Plan, which will cover the Cooperative Effort Area. The Monitoring Plan will focus on understanding the resource and preparing to measure the success of the applied prescriptions.

The Monitoring Plan will be developed and implemented as part of the Cooperative Effort, and will incorporate the elements of the monitoring plan prepared during Phase 3B of the draft SMP that the Management Committee determines are appropriate. The monitoring data will be used by the Management Committee for its decision-making. For example, monitoring will be used to identify changes in the aquatic environment, identify critical stream reaches, assign priorities for action steps, evaluate the effectiveness of actions taken, and to modify and refine strategies for achieving goals of the Cooperative Effort.

The elements of the plan will be determined as part of the Cooperative Effort. The Plan could include some or all of the following elements:

- Identification of key stream segments and groundwater to monitor.
- Existing hydrologic conditions.
- Specific existing ecological conditions at key locations.
- Permanent stream transects to monitor and evaluate any future changes in ecological conditions (e.g., shifts in riffle/pool ratios, increases in sedimentation, reduction in stream habitat diversity) associated with changes in channel maintenance and applied flushing flows proscribed in the Cooperative Effort.
- Establish key indicators of aquatic life and stream health (e.g., fish biomass) and threshold levels at specific locations that reflect increases or declines in aquatic life and stream health from application of measures defined in the Cooperative Effort.

**Appendix M-5**  
**Colorado River Cooperative Agreement, May 15, 2012, Proposed Agreement**





## **COLORADO RIVER COOPERATIVE AGREEMENT**

This Agreement is entered into among the following listed Signatories, to become effective upon the first business day at least seven days after the last Signatory has signed this Agreement. The Effective Date of this Agreement is the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_. The Signatories acknowledge the mutual exchange of consideration in entering into this Agreement.

City and County of Denver, acting by and through its Board of Water Commissioners (Denver Water)  
Board of County Commissioners, County of Eagle  
Board of County Commissioners, County of Grand  
Board of County Commissioners, County of Summit  
Colorado River Water Conservation District  
Middle Park Water Conservancy District  
Clinton Ditch and Reservoir Company  
Eagle Park Reservoir Company  
Eagle River Water and Sanitation District  
Upper Eagle Regional Water Authority  
Grand Valley Water Users Association  
Orchard Mesa Irrigation District  
Ute Water Conservancy District  
Palisade Irrigation District  
Mesa County Irrigation District  
Grand Valley Irrigation Company  
City of Glenwood Springs  
City of Rifle

This Colorado River Cooperative Agreement consists of the 51-page agreement dated May 15, 2012; Attachments A through T, which have varying dates; and the CRCA Addendum dated April 5, 2012.



# **COLORADO RIVER COOPERATIVE AGREEMENT**

## **ARTICLE I**

### **Limitations on Denver Water's Water Supply Obligations**

- A. Geographic Limit on Service Area. All water available to Denver Water under its existing absolute and conditional water rights listed in Attachment A ("Attachment A Rights") shall be used within the City and County of Denver and Denver Water's current Service Area described in Attachment B ("Service Area"), except as provided in Article I.B. The Service Area shall not be expanded beyond the boundaries depicted in Attachment B.
- B. Limits on Use of Attachment A Water Rights Outside Service Area.
  - 1. Fixed-Amount Contracts. The Attachment A Rights may be used outside the current Service Area to provide up to 67,927 acre-feet of water under the existing contracts listed in Attachment C ("2010 Contracts"). In addition, Denver Water may enter into contracts to deliver an additional 4,000 acre-feet of water annually to be used in new permanent contractual arrangement not listed in Attachment C.

Of the 67,927 acre-feet currently obligated under 2010 Contracts, Denver Water may transfer up to 45,000 acre-feet from a pre-existing water delivery obligation under a 2010 Contract to a different recipient under a new permanent contract ("Future Contract"), subject to the following limitations.

- a. Previously Delivered Water. The amount of water transferred to a Future Contract recipient must fall within the volume of water previously delivered to the 2010 Contract holder during a prior calendar year, and Denver Water's obligation to the 2010 Contract holder must be reduced by a like amount. Some 2010 Contracts include an amount of water not previously delivered by Denver Water ("Unused 2010 Water"). A 2010 Contract holder may not substitute Unused 2010 Water for transferred water. The 2010 Contract holder may access the volume of Unused 2010 Water only at a rate equivalent to growth in demand in the holder's service area after the date of the transfer.
- b. Future Contract Service Area. The service area of any Future Contract recipient must be located in Adams, Arapahoe, Broomfield, Douglas or Jefferson County.

- c. Drought Reductions. All Future Contracts must provide for reductions in deliveries during such times as Denver Water imposes mandatory water use restrictions as part of a drought response program.
  - d. Reuse Under Future Contracts. If the 2010 Contract did not expressly grant to the recipient of the water the right of reuse or successive use, then the Future Contract may grant the right of reuse and successive use of the transferred water only if such reuse is subject to the provisions of Article I.B.2.e and Article II. Nothing in this paragraph shall prevent a recipient of a Future Contract from making an initial fully consumptive use of the transferred water that will not generate effluent or return flows.
  - e. Recycle Water Contracts. Any water transferred from one of the Recycle Water contracts listed on Attachment C shall retain recycled water as the source of water delivered under the Future Contract.
  - f. Payment of West Slope Charge. As a condition of receiving water under a Future Contract, any Future Contract holder shall enter into a West Slope Charge Agreement in substantially the form of Attachment D, and shall pay a West Slope Charge of 12.5%.
  - g. Prohibition on Seeking West Slope Supplies. Any recipient of water under a Future Contract must agree to comply with the Abstention Provisions.
2. Other Contractual Water Supply Obligations. Some of Denver Water's supply obligations to entities or areas outside the Service Area present unique circumstances or opportunities and are not included within the volumetric limit established in Article I.B.1. Denver Water may use the Attachment A Rights outside the Service Area to provide water under the following circumstances:
- a. Obligations to Littleton under Littleton's Total Service Distributor Contract dated March 9, 2011.
  - b. Water to be provided to Public Service Company and to West Slope entities in the event of a relaxation of the Shoshone Call under the provisions of the 2007 Shoshone Agreement or the provisions of Article VI of this Agreement.
  - c. Use of Denver Water's water rights on the West Slope: (1) for beneficial use by the West Slope entities; or (2) to meet regulatory obligations required for Denver Water's operations or projects; or (3) for other purposes specifically authorized under this Agreement.

- d. Water delivered from the potable water distribution system at Denver International Airport that would otherwise need to be discharged from the system to maintain the chlorine residual and avoid nitrification within the potable water system.
  - e. Reusable return flows in excess of Denver Water's obligations under Article II or not committed to a 2010 Contract may be used in Joint Use Projects, subject to the following limitations in this subsection. The use of reusable return flows under this section does not in any way diminish Denver Water's obligations under Article II. As a condition of such use, East Slope lessees or purchasers of Denver Water's reusable return flow for use outside the Service Area:
    - i. Shall enter into a West Slope Charge Agreement in substantially the form of Attachment D, and shall pay a West Slope Charge of 12.5%.
    - ii. Must comply with the Abstention Provisions.
    - iii. Will maximize using best efforts the reuse or successive use of reusable water available to them.
    - iv. Will adopt and implement a conservation plan that would achieve results similar or proportionately the same as Denver Water's.
3. Deliveries of Water on a Temporary Basis. Denver Water may use the Attachment A Rights to deliver water on a temporary basis outside the Service Area, as limited by the following provisions.
- a. For spot sales, subject to the following limitations:
    - i. Definition. The definition of a spot sale for purposes of this agreement is a lease of water available to Denver Water on a sporadic basis as a result of temporary hydrologic conditions or operational constraints, which is delivered to the recipient over a period no longer than 14 consecutive days.
    - ii. Holiday Restrictions: Spot sales of Blue River water will not be made for use during the Memorial Day, Fourth of July and Labor Day weekends. For purposes of this paragraph 11, Memorial Day and Labor Day weekends means Friday, Saturday, Sunday and Monday of that holiday. Fourth of July weekend means (1) if the holiday falls on a Thursday then the weekend is Thursday, Friday, Saturday, and Sunday; (2) if the holiday falls on either Friday, Saturday, Sunday, or Monday, then the weekend is Friday, Saturday, Sunday, and Monday; (3)

if the holiday falls on a Tuesday then the weekend is Saturday, Sunday, Monday, and Tuesday; and (4) if the holiday falls on a Wednesday, then the weekend is only on Wednesday.

- iii. Reservoir Level Restrictions: Spot sales of Blue River water will be made only when: (1) the Dillon Reservoir lake level is projected to be at or above the Frisco Marina elevation from June 18 to Labor Day weekend, and will not be reduced below that elevation as a result of the spot sales. For purposes of this paragraph 11, the Frisco Marina elevation means the elevation at which the Frisco Marina can be fully operational. At the time of execution of this agreement, the Signatories agree that the Frisco Marina elevation is 9012. However, Summit County and Denver Water may later agree that a lower elevation has become suitable as the result of physical changes to the Marina or the Reservoir.

If Denver Water makes a spot sale of Blue River water during the runoff season prior to June 18 based on projections of reservoir level, and the reservoir level fails to reach the Frisco Marina elevation by June 18 or falls below that elevation prior to Labor Day, then Denver Water will forfeit the revenue received from the spot sale and deposit an equivalent amount into the West Slope Fund for water supply and water quality projects.

- iv. Dillon Outflow Restrictions. Spot sales of Blue River water will not be made:
  - a) From Memorial Day weekend to the end of July, if outflow from Dillon Reservoir is less than 300 cfs during any diversion and delivery of spot sale water; or
  - b) At other times of the year, if outflow from Dillon Reservoir is less than 100 cfs during any diversion and delivery of spot sale water.
- v. Limit on Temporary Water Deliveries. The total combined volume of all spot sales and temporary leases of water resulting from the Attachment A Rights will not exceed a three-year running average of 7,300 acre feet, with an annual maximum of 12,300 acre-feet in a given year.
- vi. Payment by Recipients. Purchasers of spot sale water shall enter into a West Slope Charge Agreement in substantially the form of Attachment D, and shall pay a West Slope Charge of

15%.

- vii. Shoshone Call Restriction. Spot sales will not be made when the senior Shoshone call is subject to relaxation under the provisions of the 2007 Shoshone Agreement or the provisions of Article VI.E of this Agreement.

b. For temporary leases, subject to the following limitations:

- i. The definition of temporary leases for purposes of this agreement is a lease of water for a duration not to exceed five consecutive years.
- ii. Any lessee would be limited to no more than five years of water delivery in any ten year period under one or more temporary leases.
- iii. The total volume of spot sales and temporary leases of water from west slope sources will not exceed 3,300 acre-feet in any given year.
- iv. The total combined volume of all spot sales and temporary leases of water resulting from the Attachment A Rights will be limited as described in paragraph I(B)(3)(v).
- v. Lessees shall enter into a West Slope Charge Agreement in substantially the form of Attachment D, and shall pay a West Slope Charge of 15%.
- vi. All temporary leases must provide for reductions in deliveries during such times as Denver Water imposes mandatory water use restrictions as part of a drought response program.

4. WISE Partnership Agreement. The Attachment A Rights may be used to provide water under the WISE partnership agreement with the City of Aurora and the South Metro Water Authority, so long as the use of the rights is otherwise authorized under this Article I.B, and subject to the following limitations:

- a. The recipients of WISE water shall enter into a West Slope Charge Agreement in substantially the form of Attachment D, and shall pay a West Slope Charge of 12.5% on all water provided by Denver Water, regardless of which provision of Article I.B authorizes the use.
- b. The recipients of WISE water must comply with the Abstention Provisions.

- c. The recipients of WISE water must maximize using best efforts the reuse or successive use of reusable water available to them.
- d. The recipients of WISE water must adopt and implement a conservation plan that would achieve results similar or proportionately the same as Denver Water's.

C. Other Water Rights.

1. Joint Use Projects. Denver Water may use its existing East Slope water rights listed in Attachment E in Joint Use Projects on the Front Range, so long as such use of the water rights does not result in a decrease in the supply of water available to Denver Water under the Attachment A Rights or in an increase in diversions of water by participants in the Joint Project, including Denver Water, from the West Slope to the East Slope. Participants in these projects must agree to comply with the Abstention Provisions.
2. New East Slope Water Rights. Denver Water may use outside the Service Area any water made available: (a) as a result of East Slope water rights appropriated or acquired after execution of this Agreement or (b) by means of contractual arrangements with East Slope entities entered into after execution of this Agreement involving East Slope water rights. Such use of the water shall not result in a decrease in the supply of water available to Denver Water under the Attachment A Rights, or in an increase in diversions of water by participants in the project, including Denver Water, from the West Slope to the East Slope.
3. West Slope Water Rights. After the Effective Date of this Agreement, Denver Water will not seek to: (a) develop any of its Division 5 water rights listed in Attachment E; or (b) create any new depletion, not caused by the exercise of the Division 5 water rights listed in Attachment A, from the Colorado River and its tributaries, for diversion to the East Slope; or (c) acquire any water right on the West Slope that would increase the yield Denver Water currently calculates based on the full use of the Division 5 water rights listed in Attachment A, without the prior approval of the River District and the County Commissioners for each county in which a new facility would be located or in which a new water right would be exercised.

Denver Water will not seek to appropriate or acquire any other water right on the West Slope, without first consulting in good faith with potentially affected



West Slope Signatories in order to identify and attempt to mitigate any potential adverse effect on West Slope interests, subject to the other provisions of this Agreement. The West Slope Signatories reserve the right to oppose any such development, appropriation or acquisition of water rights in water court, permit proceedings, or other forums.

**ARTICLE II**  
**Denver Water's Conservation and Reuse Commitments**

- A. Reuse of Blue River Water. Denver agrees to reuse its Blue River water and other lawfully available reusable water through exchanges into its South Platte diversion and storage facilities and through its recycled water treatment plant that provides water for nonpotable purposes. For use within the Service Area and to provide up to 6,400 acre-feet of recycled water outside the Service Area under the Recycle Water contracts listed in Attachment C or Future Contracts resulting from the transfer of those contracts pursuant to Article I.B.1, Denver Water will fully construct its recycled water system with the capacity to provide 17,500 acre-feet annually and will maximize its exchanges within legal and water availability constraints.<sup>1</sup> To achieve this level of reuse, Denver Water will complete construction of at least 30,000 acre-feet of gravel pit storage or other functionally equivalent storage.<sup>2</sup> The fully constructed recycled water plant is scheduled to be operational in 2020. The 30,000 acre-feet of gravel pit storage is also anticipated to be completed in 2020. However, the timing of development of gravel pit storage is directly related, in part, to the need for aggregate for construction purposes in the metro area, and is not within Denver Water's control. Denver Water commits to construct sufficient infrastructure to achieve the volumes listed in this paragraph subject to the uncertainties of timing described in this paragraph.
- B. Conservation Plan. Denver Water's 1996 IRP predicted that 29,000 acre-feet of water could be saved through active conservation efforts by 2045. In 2006, the Denver Water Board mandated an accelerated conservation program to accomplish that level of savings by the end of 2016. Denver Water agrees to continue to implement its existing conservation program described in Attachment F to achieve the savings of 29,000 acre-feet contemplated by the 1996 IRP, in addition to natural replacement, consistent with its goal of achieving the targeted savings by the end of 2016. (It is often not possible to measure precisely the volume of water saved as a result of a specific action, e.g., requiring soil amendment, but Denver will implement the

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<sup>1</sup> The volume of water that can be reused is determined by legal, regulatory and hydrologic conditions that vary significantly from year to year and over time, and may be fundamentally different in the future. Over the past 20 years with an annual average demand of 285,000 acre-feet, Denver Water's reuse by exchange and replacement has averaged 16,300 acre-feet per year, with a maximum of 29,900 acre-feet and a minimum of 5,800 acre-feet. With regard to future exchanges, Denver Water's computer simulation model predicts that, with an annual average demand of 345,000 acre-feet and completion of the storage described in this Article II.A, the annual average for exchanges and replacement will be 38,000 acre-feet. These modeled predictions are based on historic hydrology, past administrative practices and numerous operational assumptions, and consequently may not be construed as any sort of mandated or targeted operational requirement.

<sup>2</sup> If Denver Water's water rights cannot be exercised as anticipated to operate exchanges, making a portion of the proposed 30,000 acre-feet of storage not useful in maximizing Denver Water's exchanges, then Denver Water will notify the West Slope Signatories and identify the functionally equivalent storage, other infrastructure, or other means that it proposes to utilize to maximize its exchanges and the parties shall discuss in good faith whether to modify the provisions of this Article II.A.

conservation measures necessary to result in the volume of savings described in this paragraph.) Denver Water will inform the West Slope Signatories in an annual progress report if it decides to substitute a different conservation measure than the ones listed in Attachment F. Once Denver Water determines the conservation goal has been met, it will retain a reputable and qualified third party to confirm that the methodology used to quantify savings was reasonable. If the third party determines the methodology was not reasonable, Denver Water will correct the identified defects in the methodology, and if necessary, undertake additional conservation measures to achieve the goal.

- C. Commitment to Additional Efforts. In addition to taking actions necessary to achieve the results described in Articles II.A and II.B, Denver Water agrees to develop, for use within the Service Area and to satisfy the obligations listed in Article I.B, an additional 10,000 acre-feet on an average annual basis through reuse, including use of reusable sources of water for augmentation, and/or conservation measures not described in Articles II.A and II.B. The development of the additional 10,000 acre-feet will commence no later than the completion of the efforts described in Articles II.A and II.B, and are anticipated to be completed by the end of calendar year 2030. Once Denver Water determines the additional 10,000 acre-feet has been attained, it will retain a reputable and qualified third party to confirm that the methodology used to quantify the attainment was reasonable. If the third party determines the methodology was not reasonable, Denver Water will correct the identified defects in the methodology, and if necessary, undertake additional reuse or conservation measures to achieve the goal.

**ARTICLE III**  
**Denver Water's Other Commitments**

**A. General**

1. Denver Water agrees to make a good faith effort to identify which of its West Slope conditional water rights might be needed and to abandon those conditional water rights that it deems are not needed.
2. As used in this Article III, "Resolution of Blue River Decree Issues" means the entry of final judgments and decrees no longer subject to appeals which make absolute 654 cfs in 06CW255, Water Division 5, and in 49-cv-2782, U.S. District Court, and 141,712 acre-feet in 03CW039, Water Division 5, in accord with the Amended Application to Make Absolute, filed with the court on February 16, 2006.
3. Use of Denver Water's Water Rights on West Slope.
  - a. Denver Water will be responsible for providing substitution water and power interference charges to Green Mountain Reservoir and replacement water to other senior downstream water rights as necessary to ensure that West Slope recipients of the water provided by Denver Water under this Article III may use the water as provided in this Agreement.
  - b. The signatories to this Agreement will cooperate to obtain such court decrees and approvals as are necessary to ensure that Denver Water's water that is made available to West Slope users under this Agreement, the 1985 Summit Agreement and the 1992 Clinton Agreement may be used on the West Slope for all uses, including but not limited to, fully consumptive uses, reuse and successive uses.
4. Replacement Water. Certain provisions of this Article III require recipients of water deliveries from Denver Water to make available to Denver Water "Replacement Water." Replacement Water may be made available to Denver Water from Green Mountain Reservoir, Wolford Mountain Reservoir, West Slope supplies of Windy Gap Project water, water made available to the West Slope from relaxation of the Shoshone Call pursuant to the 2007 Shoshone Agreement or the provisions of Article VI.E, water stored in Old Dillon Reservoir, water made available to West Slope water users pursuant to the 2003 Colorado Springs Substitution Agreement including return flows of such water, decreed consumptive use credits and reusable return flows, water diverted from Straight Creek into Dillon Reservoir by Summit County users, or any other substitution source reasonably acceptable to the Bureau of Reclamation and the Signatories. Where Replacement Water is required, Denver Water's delivery of water is contingent upon the Replacement Water

being on hand and physically and legally available for Denver Water's use for substitution purposes and will be provided to Denver Water for each acre foot of water delivered.

5. Escalation. The amounts of money that Denver Water is committed to pay under this Article III will be subject to escalation beginning on the fourth anniversary of the Effective Date of this Agreement, based on changes in the Consumer Price Index for All Urban Consumers ("CPI-U") for the Denver-Boulder-Greeley Metropolitan Area.

**B. Summit County – Blue River**

1. Payment by Denver Water. \$11 million will be paid by Denver Water, subject to the terms set forth below.
2. Waste Water Treatment Plant Fund. \$1 million of the \$11 million shall be deposited into an interest-bearing fund to be administered by Summit County to offset the impacts of lower Dillon Reservoir levels or reduced outflows from Dillon Dam on permitted wastewater dischargers in Summit County.
3. Environmental Enhancement Fund. \$1 million of the \$11 million shall be deposited into an interest-bearing fund to be used as 50% matching funds for Environmental Enhancement projects in Summit County. The Environmental Enhancement projects shall be selected by a committee composed of one representative from each of the five entities listed in Article III.B.4 below. If these entities cannot unanimously agree on a project or projects, then each entity will be entitled to use one-fifth of the funds for a 50% match for an Environmental Enhancement project selected by that entity.
4. Payments for Projects in Summit County. \$9 million of the \$11 million will be distributed in five equal shares to the following entities to offset the costs of the projects listed in Attachment G:
  - Town of Dillon
  - Town of Silverthorne
  - Town of Frisco/Frisco Sanitation District
  - Town of Breckenridge
  - Summit County/other water districts listed in Attachment G
5. Reallocation of Funds. Denver Water will not object to the reallocation of the \$9 million as may be agreed by these entities, and these entities will determine the allocation of these funds for the projects described in Attachment G without restrictions imposed by Denver Water. Funds can be used to reimburse the sponsoring entity for project costs incurred before the funding is to be provided by Denver Water under Article III.B.6 below.

6. Timing of Payments. The schedule for payment of the \$11 million is as follows:
  - a. \$4.5 million of the \$9 million described in Article III.B.4 above within one year of Resolution of Blue River Decree issues.
  - b. \$4.5 million of the \$9 million described in Article III.B.4 above within six months upon Issuance and Acceptance by Denver Water of Permits Necessary for the Moffat Project.
  - c. The \$1 million for Environmental Enhancements under Article III.B.3 will be deposited into the interest-bearing fund at the time of execution of the Agreement. These funds would be immediately available as matching funds whenever an Environmental Enhancement project is selected pursuant to Article III.B.3.
  - d. The \$1 million dedicated to assisting wastewater treatment plants under Article III.B.2 will be deposited into the interest-bearing fund at the time of execution of this Agreement.

7. 250 Acre Feet of Dillon Storage Water. Upon Resolution of Blue River Decree Issues, Denver Water will provide an additional 250 feet per year of water from Dillon Reservoir with a yield as reliable as the yield available to Denver Water at Dillon Reservoir. This water will be allocated as follows:

Town of Silverthorne	=	60 acre feet
Summit County	=	56 acre feet
SNAKE RIVER WATER DISTRICT	=	45 acre feet
Town of Dillon	=	45 acre feet
Copper Mt. Metro District	=	29 acre feet
Dillon Valley Metro District	=	15 acre feet

There shall be no Replacement Water or other compensation for this Dillon storage water.

8. Montezuma Shaft.
  - a. Denver Water is willing to consider, on a case-by-case basis, use of the Montezuma Shaft by the Snake River Water District, East Dillon Water District and Summit County Government on a space available basis when the Roberts Tunnel is operating. Any such future use will be subject to written acknowledgement by all water users that the supply is interruptible and will be subject to Denver Water's ability, in its sole discretion, to take the Roberts Tunnel out of service for maintenance, inspection and operational needs.

- b. Any water resulting from use of the Montezuma Shaft as described in the preceding paragraph will come out of the users' allocations of water under the 1985 Summit Agreement, the 1992 Clinton Agreement or this Agreement.
- 9. Old Dillon Reservoir. Denver Water will not object to the construction and operation of Old Dillon Reservoir in accordance with permits issued by the U.S. Forest Service and U.S. Army Corps of Engineers. Nothing herein shall be construed as a subordination to the operation of this project of any of Denver Water's decreed water rights and exchanges. Upon execution of the agreement between Denver Water and Old Dillon Reservoir Water Authority, Denver Water will withdraw its statements of opposition to all pending Old Dillon Reservoir water court applications by Summit County and Towns of Dillon and Silverthorne.
- 10. Dillon Reservoir Levels. Denver Water agrees to use its best efforts to maintain the water level of Dillon Reservoir for recreational and aesthetic purposes at or above 9012 feet in elevation, above mean sea level, from June 18 to Labor Day of each year. This is a target elevation that may not be achieved, depending upon various factors, and is subject to Denver Water's water supply obligations. Under the Blue River Decree, Denver Water's diversions are limited to municipal purposes only. Denver Water will continue to comply with the Blue River Decree and to operate the Roberts Tunnel to meet its water supply obligations and not solely for recreational or hydropower purposes.
- 11. Town of Frisco. Denver Water has allowed the Town of Frisco to use its Future Dillon Water under the 1985 Summit Agreement as a source of augmentation supply for snowmaking at its winter sports area pursuant to the Future Dillon Water Agreement dated November 18, 2009 between Denver Water and Frisco. Denver Water and Frisco agree to participate in a joint study on the amount and timing of snowmaking return flows from the winter sports area and to cooperate in maximizing the amount of snowmaking return flows in any Water Court proceeding.
- 12. Additional Exchanges. Denver Water will allow additional exchanges through Dillon Reservoir for the benefit of Summit County users, so long as Denver Water's firm yield is kept whole, such exchanges do not interfere with Denver Water's operations, and Denver Water is afforded an opportunity to protect its interests in any legal or administrative proceeding.
- 13. Temporary Storage. At its sole discretion, Denver Water will allow Summit County entities to temporarily store additional water in Dillon Reservoir on a space available basis.

14. Additional 1493 Acre Feet.

- a. Upon resolution of Blue River Decree issues, Denver Water will provide to the entities listed below 1493 acre feet per year from Dillon Reservoir with a yield as reliable as the yield available to Denver Water at Dillon Reservoir. This water shall be made available directly in Dillon Reservoir each year or, at the option of an individual recipient, the portion of this water to which the recipient is entitled shall be provided in Clinton Gulch Reservoir (the Clinton Bookover Water<sup>1</sup>) in lieu of an equal amount of water that would be available to such recipient in Dillon Reservoir, by operating Denver Water's Blue River Diversion Project water rights to allow storage of the Clinton Bookover Water in Clinton Reservoir. In the event Denver Water does not have an account balance in Clinton Gulch Reservoir pursuant to the terms of the 1992 Clinton Agreement, the Clinton Bookover Water shall be booked over to the recipient from water in storage in Clinton Gulch Reservoir, pursuant to separate operating procedures to be agreed upon by Denver Water and the Reservoir Company. In the event Denver Water has an account balance in Clinton Reservoir pursuant to the terms of the 1992 Clinton Agreement, the Clinton Bookover Water shall be booked over to that recipient from Denver Water's account in Clinton Gulch Reservoir. Any Clinton Bookover Water may not be carried over in Clinton Gulch Reservoir from year to year. Such water will be allocated as follows:

- Vail Summit Resorts (Keystone) = 302 acre feet (1)
- Unallocated future supply pool = 175 acre feet (2)
- Copper Mountain Resort = 142 acre feet (1)
- Town of Silverthorne = 140 acre feet
- Summit County = 134 acre feet
- Vail Summit Resorts (Breckenridge) = 126 acre feet (1)
- Town of Breckenridge = 108 acre feet (3)
- Town of Dillon = 105 acre feet
- Snake River Water District = 105 acre feet
- Copper Mountain Metropolitan District = 69 acre feet
- Arapahoe Basin Ski Area = 52 acre feet (1)
- Dillon Valley Metro District = 35 acre feet

<sup>1</sup>This water may be used for snowmaking purposes and is entitled to a snowmaking ratio of not more than 5 to 1 (or such other ratio based on the amount of credited snowmaking return flows established by subsequent decrees.) Denver Water and each ski area agree to participate in joint studies on the amount and timing of snowmaking return flows from each ski resort using the foregoing water, and to cooperate in maximizing the amount of snowmaking return flows in any Water Court proceeding. The combined



volume of water for snowmaking amounts under this Article III, excluding snowmaking by the Town of Frisco under Article III.B.11, and the 1992 Clinton Agreement shall not exceed the 6000 acre feet limit on snowmaking water contained in the 1992 Clinton Agreement.

<sup>2</sup>The unallocated pool will be administered by a board consisting of one representative from the Towns of Breckenridge, Dillon, Frisco and Silverthorne and the Summit County Commissioners

<sup>3</sup>A portion of this water is entitled to the snowmaking ratio described in note 1 above. Denver Water and the ski area agree to participate in a joint study on the amount and timing of snowmaking return flows from the ski resort, and to cooperate in maximizing the amount of snowmaking return flows in any Water Court proceeding. The combined volume of water for snowmaking amounts under this Article III, excluding snowmaking by the Town of Frisco under Article III.B.11, and the 1992 Clinton Agreement shall not exceed the 6000 acre feet limit on snowmaking water contained in the 1992 Clinton Agreement.

- b. The recipients of this water shall provide to Denver Water Replacement Water for each acre foot of the yield water. The ratio shall be 1 acre foot of Replacement Water for each acre foot of water delivered above or into Dillon Reservoir and 1.4 acre feet of Replacement Water for each acre-foot made available below Dillon Reservoir.
- c. The Summit County users shall be responsible for accounting for the use of all water provided by Denver Water under this Agreement. This accounting will be coordinated by a single engineering firm with accounting under the 1985 Summit Agreement and the 1992 Clinton Agreement.

- 15. Place of Use. The place of use of any of the water provided under this Article III.B will be a matter of internal agreement among Summit County water users and will not be limited by Denver Water, provided that any water booked over to Denver Water under the 1992 Clinton Agreement will be retained in Clinton Reservoir.
- 16. Dillon Bypass Flows. Denver Water's release of water from Dillon Reservoir is subject to the terms of its 1966 right-of-way from the Department of Interior for Dillon Reservoir. Upon resolution of Blue River Decree issues, Denver Water agrees: (1) to waive its right to reduce releases under section 2 (C) of the 1966 right-of-way; and (2) to add the following new limitation upon its ability to reduce releases in addition to the conditions described in the right of way: Denver Water will not reduce releases below those required by section 2 (A) of the right of way unless an emergency

declaration banning residential lawn watering during the irrigation season is in force within its Service Area. Nothing herein shall alter or amend Denver's ability to reduce bypasses under paragraph 2(A) of the right of way during an emergency or during temporary periods of time involving maintenance or repairs on the water facilities involved. Nothing herein shall alter or amend any other obligation of Denver Water with respect to releases from Dillon Reservoir, including, without limitation, the terms of the Record of Decision for the Wolford Mountain (Muddy Creek) Reservoir; the Memorandum of Agreement among the U.S. Bureau of Reclamation, Northern Colorado Water Conservancy District, Colorado River Water Conservation District, and Denver Water dated December 30, 1991, regarding substitutions from Wolford Mountain Reservoir (MOA No. 2-AG-60-01550); the decree in Case No. 91CW252, Water Division No. 5 (also entered in Consolidated Case Nos. 2782, 5016, and 5017, U.S. District Court, District of Colorado); and the 1992 Clinton Agreement.

17. Silverthorne's Dillon Storage Water. Upon resolution of Blue River Decree issues, Denver Water and Summit County will amend the 1985 Summit Agreement to eliminate the current restrictions on the use of the 300 acre feet of Dillon Storage Water made available to the Town of Silverthorne. A form of the revisions to the 1985 Summit Agreement to accomplish this result is attached as Attachment H. The Silverthorne RICD will not be used to prevent or otherwise limit the exchange or substitution of any replacement or exchange water into Dillon Reservoir under this Agreement, the 1985 Summit Agreement or the 1992 Clinton Agreement.
18. Colorado Springs Substitution Agreement. Denver Water will agree to support extension of the Colorado Springs substitution agreement adjudicated in Case No. 03CW320, Water Division 5, as long as it is in substantially the same form as the present agreement.

**C. Clinton Reservoir Agreements.**

1. Upon the execution of this Agreement, the 1992 Clinton Agreement shall be amended to add a new whereas clause after the second whereas clause to read as follows:

Whereas, by decree of the District Court in and for Water Division No. 5, State of Colorado, in Case No. 98CW57, Clinton Reservoir was granted a Use Enlargement and Second Filling in the amount of 4,250 acre feet for domestic, municipal, industrial, snowmaking, recreation, fish and wildlife propagation and augmentation purposes, both on the eastern and western slopes of Colorado, and an application is pending in Case No. 06CW252 for Clinton Gulch Reservoir 1st Enlargement and Refill Right for an additional

210 acre feet. All references to Clinton Reservoir herein collectively refer to the storage rights decreed in Case Nos. W-2559, 98CW57 and 06CW252;

2. Upon the execution of this Agreement, paragraph 1(b) of the 1992 Clinton Agreement shall be amended to read as follows:
  - (b) Clinton Reservoir will retain for the uses set forth in paragraph 1(c) below any water stored in an accounting year if an allowable fill occurs. An allowable fill occurs each year except: (i) when Green Mountain Reservoir does not fill under its own right and the Water Board is required to provide substitution water to Green Mountain Reservoir in order to retain water diverted at Dillon Reservoir; or (ii) when the contents of Dillon Reservoir are less than 100,000 acre feet on August 1 for reasons other than the Water Board's maintenance or repair of its Dillon Reservoir facilities and the total combined contents of the Water Board's Dillon, Gross, Cheesman, Eleven Mile and Antero Reservoirs are less than 51% of their total usable capacity on August 1. Subject to the provisions of Paragraph 9 below, if an allowable fill does not occur in a given accounting year, the water stored in Clinton Reservoir during that accounting year will be credited to the Water Board's account and retained in Clinton Reservoir until the contents of Dillon Reservoir as measured above the invert of the west portal of the Roberts Tunnel are 100,000 acre feet or less, in which event the water shall be released from Clinton Reservoir to Dillon Reservoir when requested by the Water Board, or until an allowable fill occurs, whereupon the Water Board's account balance of water stored in Clinton Reservoir will be reset to zero. The release of the Water Board's water stored in Clinton Reservoir shall be scheduled in such a manner as to meet the Water Board's needs in a timely manner and also to avoid the erosion of the Clinton Canal.
3. Clinton Flood Control Exchanges. At its sole discretion, Denver Water will allow the Clinton Ditch & Reservoir Company to temporarily store Clinton Reservoir water released from storage for flood control purposes in Dillon Reservoir, limited to a space available basis, and to use the stored water as an exchange supply, pursuant to operating procedures to be agreed upon at the time of the proposed exchange.
4. Clinton Reservoir Dead Storage Pool. Upon execution of this Agreement, Denver Water and the Clinton Ditch & Reservoir Company will enter into the Interim Agreement regarding the Clinton Reservoir dead storage pool attached hereto as Attachment I. Upon Resolution of Blue River Decree Issues, Denver Water and the Clinton Ditch & Reservoir Company will enter into the permanent Agreement regarding the Clinton Reservoir dead storage pool attached hereto as Attachment J. The interim agreement will renew on a

year-to-year basis so long as the Signatories are still engaged in efforts to achieve Resolution of Blue River Decree Issues.

5. Denver Water Opposition. Upon the execution of this Agreement, Denver Water will consent to the decree in Water Division No. 5 Case No. 06CW252 attached hereto as Attachment K for a total reservoir capacity of 4460 acre feet which includes a dead storage pool of 801 acre feet.
6. Spillway Enlargement Water. Upon Resolution of Blue River Decree Issues, Denver Water and the Clinton Ditch & Reservoir Company will modify their existing 1992 Clinton Agreement to add the spillway enlargement water (up to a maximum of 500 acre feet). The water from the total reservoir capacity, including the dead storage pool and spillway enlargement, will be allocated to existing shareholders of the Clinton Ditch & Reservoir Company on a pro rata basis as either fourth year supply, or one-third of that amount will be so allocated as an increase in the "Reservoir Yield" of Clinton Reservoir, as that term is defined in the 1992 Clinton Agreement.
7. Upon the execution of this Agreement, paragraph 10(a) of the 1992 Clinton Agreement shall be amended to read as follows:

(a) Whenever water cannot be diverted from the Snake River or its tributaries because of decreed instream flows, or the operation of the instream flow memorandum of agreement between Keystone Resorts Management, Inc. ("Keystone") and the Department of Natural Resources, or the water quality of the Snake River, Keystone may pump up to 1500 acre feet of water from September 1 of each year to March 31 of the following year from the Montezuma Shaft of the Roberts Tunnel, subject to the provisions of this paragraph.

**D. Eagle County.**

1. Any development and use of Wolcott Reservoir shall be in compliance with the terms of the settlement agreement between Denver Water and the Eagle River Water & Sanitation District and Upper Eagle Regional Water Authority and the subsequent decrees in Water Division No. 5 Case Nos. 02CW125 and 07CW126.
2. Denver Water will not seek any new appropriation of water in the Eagle River basin or pursue or participate in any acquisition of water rights or any project that would result in any new depletion from the Eagle River basin without the prior approval of the Eagle County Commissioners, the River District, the Eagle Park Reservoir Company, the Eagle River Water & Sanitation District, and the Upper Eagle Regional Water Authority.

In addition, the Abstention Provisions applied in Article I of this Agreement provide that any entity receiving water from Denver Water under any Future Contract or any contract for Reusable Return Flows will not seek any new appropriation of water, or pursue or participate in any project that would result in any new depletion from the Eagle River basin.

3. Denver Water will not oppose any future interconnect between Clinton and Eagle Park Reservoirs, provided that the water in Clinton Reservoir that has been booked over to Denver Water pursuant to the terms of the 1992 Clinton Agreement remains in Clinton Reservoir.
4. Upon execution of this Agreement, Denver Water will withdraw its pending motion and statement of opposition in Water Division No. 5 Case No. 02CW403.

E. **Grand County and Fraser, Williams Fork and Upper Colorado River Basins**

1. **General Provisions for Article III.E.**

- a. **Relationship to Moffat Project Permitting Process.** Denver Water has applied for a permit for the Moffat Project from the Corps of Engineers (“COE”) under Section 404 of the Clean Water Act. The Moffat Project involves enlargement of Gross Reservoir located in Boulder County and the diversion of additional water from the Upper Colorado, Williams Fork and Fraser River watersheds in Grand County. Grand County is a consulting agency in that permitting process and has submitted comments to COE that are a part of the regulatory record. As part of the permitting process, the COE will approve a Mitigation Plan designed to avoid, minimize, or mitigate any new impacts to the stream environment that might be caused by the Moffat Project.
  - i. **Mitigation.** The provisions of this Article III.E are not intended to define and do not substitute for the Mitigation Plan that will be required by COE. Denver Water will comply with the Mitigation Plan approved by COE in addition to fulfilling the commitments contained in this Article III.E. The funds committed by Denver Water in Articles III.E.2 and III.E.3 are subject to proportional reduction if the Mitigation Plan required in the permitting process mandates funds for the purposes described in those sections.
  - ii. **Improvements.** Denver Water’s commitments in sections E.5 through E.24 include several measures designed to improve current stream conditions (“Improvements”) and do not represent mitigation for the Moffat Project. The Signatories agree that they shall not represent

that the Improvements are designed or intended to avoid, minimize, or mitigate any impacts associated with the Moffat Project..

- b. Water Rights Issues. The Signatories to this Agreement will cooperate to implement such legal mechanisms and to obtain such administrative and judicial approvals as Denver Water, Grand County, the River District, and Middle Park agree are necessary to ensure that the water provided under this Article III.E will be physically and legally available for the intended purposes of protecting and enhancing stream flows in the Fraser, Williams Fork, and Colorado Rivers and their tributaries. Denver Water agrees not to divert any water through the Moffat Project for storage in an enlarged Gross Reservoir until such time that the water committed by Denver Water pursuant to this Article III.E is legally available for use by Grand County.
    - c. Responsibility for Infrastructure. Several provisions of this Article III.E require Denver Water to deliver or make water available for various uses within Grand County. Except for the funding for water projects pursuant to Article III.E.14, Denver Water will not be responsible for the costs of any new infrastructure required to deliver or make the water available.
2. \$2 million to Address Water Quality Upon Issuance and Acceptance by Denver Water of Permits Necessary for the Moffat Project, Denver Water will provide \$2 million to pay for measures to address water quality, including but not limited to improvements to the capacity of wastewater treatment plants. If the Mitigation Plan required in the permitting process for the Moffat Project mandates funds for nutrient removal/water quality, then the direct funding to Grand County under this paragraph would be proportionately reduced. For example, if the mitigation plan requires the expenditure of \$500,000 for nutrient removal/water quality, then the direct funding to Grand County would be reduced to \$1.5 million. The water quality funds will be allocated and administered by a board consisting of one representative from each of the following entities: Grand County Commissioners, Town of Fraser, Grand County Water and Sanitation District No. 1, Winter Park Water and Sanitation District, Tabernash Meadows Water and Sanitation District, Granby Sanitation District, and Winter Park Ranch Water and Sanitation District.
3. \$1 Million for Aquatic Habitat. Upon Issuance and Acceptance by Denver Water of Permits Necessary for the Moffat Project, Denver Water will provide \$1 million to be used in the Cooperative Effort process described in Article III.E.6 for the purpose of improving aquatic habitat in the Upper Colorado, Fraser and Williams Fork River basins. If the Mitigation Plan required in the permitting process for the Moffat Project mandates funds for this purpose, then the direct funding to Grand County under this paragraph would be proportionately reduced.
4. Berthoud Pass Sedimentation Pond. Denver Water has entered into an agreement with CDOT to construct a sediment catch basin above Denver's diversion structure on the Fraser River. Denver Water has agreed to operate and maintain the project

and has also contributed \$50,000 for this effort. Grand County agrees that Denver Water may seek mitigation credit for sediment removal in the Fraser River from COE for its participation in the sediment project.

5. Environmental Pool in Gross Enlargement. Denver Water has entered into an agreement with the Cities of Boulder and Lafayette dated February 24, 2010, to create a 5,000 acre-foot Environmental Pool within the enlargement of Gross Reservoir as part of the Moffat Project. Denver Water agrees not to store water, directly or by exchange, any of its West Slope water rights listed in Attachments A and E in the Environmental Pool in Gross Reservoir, unless the River District, Middle Park and Grand County have agreed in advance and in writing.
6. Cooperative Effort for Aquatic Environment. Denver Water, the River District, Middle Park, and Grand County agree to execute an intergovernmental agreement establishing the Learning by Doing Cooperative Effort (“Cooperative Effort”) to protect, restore, and when possible enhance, the aquatic environment in the Upper Colorado, Fraser and Williams Fork River basins. Denver Water and Grand County will jointly request that the COE acknowledge the Learning by Doing IGA in the Record of Decision for the Moffat Project.
7. Additional \$1 Million for Aquatic Habitat. Upon Issuance and Acceptance by Denver Water of Permits Necessary for the Moffat Project, Denver Water will provide \$1 million to Grand County, in addition to the funds committed in Article III.E.3, to be used in the Cooperative Effort process for the purpose of improving aquatic habitat.
8. \$2 Million for Future Environmental Enhancements. Denver Water will place \$2 million in an interest bearing account acceptable to the Management Committee established as part of the Cooperative Effort within two years after the Moffat Project becomes operational to address potential future environmental enhancements in Grand County as part of the Cooperative Effort.
9. Funds for Windy Gap Pumps to Provide Environmental Flows. Beginning with the year the Moffat Project becomes operational, Denver Water will place \$500,000 into an interest bearing fund (WG Pumping Fund) acceptable to and controlled exclusively by Grand County. Two years after the fund is established, Denver Water will place a second \$500,000 into the Fund. The WG Pumping Fund shall be used by Grand County for the sole purpose of paying up to 50% of the annual costs for using the Windy Gap Pumps to pump water for environmental purposes. The WG Pumping Fund may increase over time due to interest income and lower-than-expected use of the Fund, and will be capped at \$2 million dollars. Any amount in excess of \$2 million at the end of a calendar year will be transferred to the Cooperative Effort established in Article III.E.6 above for environmental improvement projects identified in that process. Grand County, in its sole discretion, can elect to transfer all or a portion of the WG Pumping Fund to the Cooperative



Effort if Grand County determines that such a transfer would provide greater environmental value.

10. Annual Bypasses on Fraser River Collection System. Each calendar year beginning with the year the Moffat Project becomes operational, Denver Water agrees to make available to Grand County 1,000 acre feet of water from its Fraser Collection System (“Fraser 1,000 af”) for use for environmental purposes and any incidental recreational benefit. The Fraser 1,000 af shall be in addition to bypasses of water by Denver Water required under the Amendatory Decision and existing contracts.
  - a. As referenced in Article III.E.1.b, Denver Water will cooperate with Grand County and the other Signatories to implement such legal mechanisms, including the possibility of augmenting instream flows and making deliveries to downstream demands, and to obtain such court decrees and approvals as are necessary to protect the Fraser 1,000 af in the Fraser and Colorado Rivers so that it reaches critical stream segments and is not diverted directly or by exchange by intervening structures within Grand County.
  - b. The Fraser 1,000 af shall be bypassed from Denver Water’s existing facilities in coordination with the Cooperative Effort, at times, in locations and in the amounts requested by Grand County for environmental purposes. As part of the Cooperative Effort and on a case-by-case basis, Denver Water agrees to consider making available more than 1000 acre feet in a calendar year.
  - c. The Fraser 1,000 af shall be measured at appropriate points of measurement for bypasses from the Fraser Collection System and shall be converted to acre feet with the standard factor, i.e. 1 cfs for 24 hours = 1.983 af.
  - d. Upon Issuance and Acceptance by Denver Water of Permits Necessary for the Moffat Project, Denver Water will undertake voluntary pilot projects using the Fraser 1,000 af for environmental purposes.
11. Annual Releases from Williams Fork. Each calendar year beginning with the year the Moffat Project becomes operational, if a portion of the Fraser 1,000 af is made available during a call on the river or when a Shoshone Outage Protocol is in effect as described in Article VI, Denver Water agrees to make available for release a like amount of water, up to 1,000 acre feet of water per year, from Williams Fork Reservoir (“Williams Fork 1,000 af”) to Grand County for environmental purposes and any incidental recreational benefit. The Williams Fork 1,000 af shall be in addition to releases of water by Denver Water required under pre-existing contracts and other legal obligations.
  - a. As referenced in Article III.E.1.b, Denver Water agrees to cooperate with Grand County and the other Signatories to implement such legal mechanisms, including augmenting instream flows and deliveries to downstream demands, and to obtain such court decrees and approvals as are necessary to protect the



Williams Fork 1,000 af in the Williams Fork and Colorado Rivers so that it reaches critical stream segments and is not diverted directly or by exchange by intervening structures within Grand County.

- b. The Williams Fork 1,000 af releases shall be coordinated with the Cooperative Effort and shall be made available at times and in the amounts requested by Grand County for use in the stream.
  - c. The Williams Fork 1,000 af shall be measured at the gage immediately below Williams Fork Reservoir and converted to acre feet with the standard factor, i.e. 1 cfs for 24 hours = 1.983 af.
  - d. All or part of the Williams Fork 1,000 af, up to 2500 acre-feet, may be carried over in Williams Fork Reservoir by Grand County into subsequent years, subject to space available, payment of pro rata evaporative loss, and so long as the carryover does not count against the Reservoir's fill or otherwise jeopardize Denver Water's decreed water rights. The Williams Fork 1,000 af and any amount carried over shall be the first to spill from Williams Fork Reservoir. Denver Water will notify Grand County as soon as it reasonably can that Williams Fork Reservoir is anticipated to spill, so that Grand County can determine whether to request a release prior to the anticipated spill.
  - e. In addition to carrying over all or part of the Williams Fork 1,000 af, as described in Article III.E.11.d above, Grand County may also exchange or substitute into the 2,500 acre-feet of carryover capacity in Williams Fork Reservoir, water Grand County has introduced to the river upstream of the confluence of the Colorado and the Williams Fork Rivers. The additional water stored in the carryover capacity will be subject to all the provisions of Article III.E.11.d.
  - f. Upon Issuance and Acceptance by Denver Water of Permits Necessary for the Moffat Project, Denver Water will undertake voluntary pilot projects using up to 1,000 acre-feet of releases from Williams Fork Reservoir, for environmental purposes.
12. Limits on Ability to Reduce USFS Bypass Flows. Denver Water is required by the United States Forest Service or the Bureau of Land Management to bypass the natural inflow at its points of diversion on the Fraser River, Vasquez Creek, St. Louis Creek and Ranch Creek under the stipulations 3(a), 3(b), 3(c), and 3(d) of the Amendatory Decision dated April 22, 1970, Serial No. 027914 (the "Amendatory Decision"). Beginning with the year the Moffat Project becomes operational, Denver Water agrees not to reduce bypasses of water as authorized by stipulations 3(e) and 5 of the Amendatory Decision, except when Denver Water has banned residential lawn watering during the irrigation season. However, Denver Water will not reduce the bypass flow on a particular stream to an extent that would cause a municipal water provider in Grand County to impose mandatory restrictions on

indoor water use, unless Denver Water is also imposing mandatory restrictions on indoor water use within its Service Area. Prior to the Moffat Project becoming operational, Denver Water agrees to undertake voluntary pilot projects limiting its ability to reduce bypass flows as described in this paragraph.

13. Ditch Operational Changes. Denver has acquired several irrigation water rights in Grand County and agrees to make those water rights available to enhance environmental flows.
  - a. Big Lake Ditch. Upon execution of this Agreement, Denver Water will participate in a joint study of how to maintain the historic agricultural uses of the Big Lake Ditch so as to maximize the environmental benefits, while substantially preserving the yield for Denver Water that it has paid for and is counting on by retiring the Big Lake Ditch demand. If the study finds the balance described in this paragraph, then Denver Water will implement the study beginning with the year the Moffat Project becomes operational.
  - b. Rich Ditch and Hammond No. 1 Ditch. Upon Issuance and Acceptance by Denver Water of Permits Necessary for the Moffat Project Denver Water and Grand County agree to fund a study to determine how best to enhance stream flows with Denver Water's rights in the Rich Ditch and Hammond No.1 Ditch. Any enhancements would be in addition to the Fraser 1,000 af and would begin with the year the Moffat Project becomes operational.
14. Financial Contribution to Infrastructure Projects in Grand County. Denver Water agrees to pay the following amounts to offset the costs of the water supply projects listed in Attachment L. The funds will be distributed by Grand County.
  - a. Denver Water will place \$1.95 million in the water supply project fund upon execution of an Article III Implementation Agreement in the form set forth in Attachment M by the recipients of those funds.
  - b. Denver Water will place \$2 million in the water supply project fund within six months after Issuance and Acceptance by Denver Water of Permits Necessary for the Moffat Project or Resolution of the Blue River Decree issues, whichever occurs later.
15. Year-Round Deliveries of Clinton Bypass Water. Upon the signing of an Article III Implementation Agreement by all recipients of Clinton Bypass Water, Denver Water will provide Clinton Bypass Water under the 1992 Clinton Agreement on a year round basis if the Grand County Water Users provide replacement water in accordance with the Replacement Water criterion of 4/3 to 1 in the summer, and if that water is in-hand and usable by Denver Water. Grand County Water and Sanitation District No. 1, Winter Park Water and Sanitations District, Town of Granby and Town of Fraser have previously dedicated to Denver Water Replacement Water in Wolford Mountain Reservoir at a ratio of 2/3 to 1 for winter use. If any of

those entities opts to take their Clinton Bypass Water in the summer, that entity would be credited with the previously dedicated 2/3 acre-foot, and would only owe an additional 2/3 of an acre-foot of Replacement Water for summer releases. Denver Water agrees that the Grand County Operating Plan can be amended to add the Jim Creek diversion as a point of delivery for the Clinton Bypass Water.

16. Twenty Percent Water. Denver Water has had a policy whereby any party who purchases water rights for conveyance to the east slope through Denver Water's system will make 20% of that water available to in-basin users in the Fraser River Basin. Denver Water agrees to make the temporary 20% contracts permanent after the snowmaking return flow recapture plan described in the Grand County Operating Plan is implemented, and provided that snowmaking is within the 6,000 acre-foot limit established by the 1992 Clinton Agreement.
17. Municipal Use of Denver's Facilities. On a case-by-case basis, Denver Water may allow water treatment plants on the Fraser River to use Denver Water's Fraser River Collection System to convey water as a temporary source of supply, if a back up supply is available and the necessary infrastructure has been installed.
18. Use of Unused Capacity. Denver Water is willing to explore, on a case-by-case basis, the possibilities for using its system to benefit Grand County if Denver Water's yield and operational needs are not impacted and its costs are not materially increased.
19. Future West Slope Water Rights Development. In addition to the limitations on Denver Water provided by Article I.C.3, Denver Water further agrees that it will not undertake any future water development projects or appropriations or acquisitions of water rights located in Grand County without the prior approval of the Grand County Commissioners and the River District.
20. Grand County 375 Acre-Feet of Water. Upon Issuance and Acceptance by Denver Water of Permits Necessary for the Moffat Project, Denver Water agrees to make an additional 375 acre feet of water available to Grand County Water Users, to be managed in accordance with the 2012 Grand County Operating Plan with a Replacement Water ratio of 4/3 to 1 summer and 2/3 to 1 winter.
  - a. One hundred acre feet of the 375 acre feet will be allocated to the Winter Park Recreational Association for use in connection with the Winter Park Ski Area and Resort. Any use of the 100 acre-feet for snowmaking will be governed by the provisions of footnote 1 in Article III.B.14; and snowmaking return flows must be above the Denver Water system.
  - b. The remaining 275 acre feet will be allocated in equal shares of 68.75 acre feet to the Town of Fraser, the Town of Granby, the Grand County Water and Sanitation District No. 1, and the Winter Park Water and Sanitation District.

21. Water Supply for Grand County from Vail Ditch Shares. A group of governmental entities in Grand County has formed the Grand County Mutual Ditch and Reservoir Company (GCMD&RC), which has acquired shares in the Grand County Irrigated Land Company (Vail Ditch shares), and may acquire additional shares in the future. Upon execution of an Article III Implementation Agreement by GCMD&RC, Denver Water agrees to allow GCMD&RC's Vail Ditch shares to be traded for a like amount of water in Denver Water's Fraser Collection System and carried through that system for delivery and use in the headwaters of the Fraser River Basin, without any increase or decrease in yield to Denver Water's system, provided that GCMD&RC pays for any necessary new infrastructure and reimburses Denver Water for any additional operational costs.

Denver Water agrees not to oppose any changes of Vail Ditch shares or such other legal or administrative mechanisms that allow the GCMD&RC to use this water. Denver Water may file statements of opposition to such change applications for the limited purpose of ensuring compliance with the obligations of this agreement. Denver Water will cooperate in seeking Englewood's approval for use of its system to transport Vail Ditch shares. If GCMD&RC is able to divert the Vail Ditch shares at other locations, Denver Water agrees not to object to such alternative diversions, provided that there is no adverse impact to Denver Water's supply or operations.

22. Denver Water Lands for Habitat or Access. Denver Water and Grand County will study which of Denver Water's lands in Grand County may have potential value for wildlife habitat and public fishing access without impacting present and future operational needs. Within one year of Issuance and Acceptance by Denver Water of Permits Necessary for the Moffat Project, Denver Water will decide which identified lands should be set aside for these purposes and what mechanism should be used.
23. Support for CWCB Filing. If information made available on the locations being considered, the impacts of the Wild and Scenic River issues, and the purpose and amounts of the filing demonstrates the lack of an impact on Denver Water's operations, Denver Water agrees not to oppose CWCB instream flow filings on those segments of the Colorado River below the confluence of the Blue River where currently there are no instream flow rights.
24. Support for RICD. If information made available on the locations being considered, the impacts to the Wild and Scenic River issues, and the purpose and amount of the filing demonstrate the lack of an impact on Denver Water's operations, Denver Water agrees not to oppose a Recreational In-Channel Diversion ("RICD") filing for the Colorado River below Gore Canyon in the Pumphouse reach above the Grand/Eagle County line.

**F. Grand Valley.**

Denver Water shall pay \$1.5 million into a fund (the “Grand Valley Fund”) to be designated by and controlled by the Grand Valley Signatories to this Agreement (the “Grand Valley Entities”). The following provisions shall apply to the Grand Valley Fund:

1. The Grand Valley Fund and any accruals to the Grand Valley Fund shall be used for water supply, water quality and/or water infrastructure projects in or benefiting the Grand Valley. Subject to such limitation, the projects for which the money in the Grand Valley Fund will be used shall be determined in the sole discretion of the Grand Valley Entities.
2. Denver Water shall pay the \$1.5 million into the Grand Valley Fund pursuant to the following schedule:
  - a. \$1 million shall be paid within 2 years after resolution of Blue River Decree issues.
  - b. \$500,000 shall be paid within 2 years after the Effective Date of this Agreement.

G. **Middle Colorado River.**

1. Within two years after the Effective Date of this Agreement , Denver Water shall place \$500,000 in an interest-bearing account to offset additional operation and maintenance costs or the costs of upgrading diversion structures of water treatment plants in Garfield County, pursuant to the provisions of Article VI.E.3.
2. Within one year of issuance of an acceptable permit for the Moffat Project, Denver Water agrees to place \$1 million in a fund for flow-related projects to protect Wild & Scenic Outstandingly Remarkable Values, and to propose this contribution as an element of the Mitigation Plan described in Article III.E.1.a.



**ARTICLE IV**  
**Agreements Regarding Denver Water's Water Rights**

- A. Blue River Decree. The West Slope Signatories shall support and cooperate in any legal or administrative proceedings necessary to implement the provisions of this Agreement related to the Blue River Decree.
1. Current Water Court Proceedings. The West Slope Signatories shall not contest and the Signatories that are parties to the case will stipulate to the entry of the proposed decrees included in Attachment N in Case No. 2006CW255 (Roberts Tunnel) making 654 cfs absolute and finding diligence for the remaining conditional amount; and Case No. 2003 CW039 (Dillon Refill) making 141,712 acre-feet absolute in accord with the Amended Application to Make Absolute, filed with the court on February 16, 2006, and finding diligence for the remaining conditional amounts and uses.
  2. Waiver of Claims Related to Blue River Decree. The West Slope signatories agree that claim preclusion applies to all claims and objections to Denver Water's operations under the Blue River Decrees raised or which could have reasonably been raised in Case Nos. 06CW255 and 03CW039, or which could have reasonably been raised in previous diligence proceedings for these water rights. The Signatories agree that the resolution of the current diligence proceeding constitutes an adjudication on the merits of their statements of opposition.
  3. Claims Not Precluded. The West Slope signatories may file statements of opposition in future proceedings under the Blue River Decree limited to: 1) Denver Water's compliance with this Agreement, and 2) claims that were not and could not reasonably have been raised in prior proceedings.
- B. East Slope Storage of Blue River Water. "Imported Blue River Water" means any water transported through the Roberts Tunnel that was diverted under the Blue River Diversion Project direct flow or Dillon Reservoir storage priorities decreed in C.A. Nos. 1805 and 1806 and Civil Nos. 2782, 5016 and 5017, including water diverted under the decrees in Case Nos. 87CW376 and 91CW252 and water exchanged pursuant to paragraph IV.C.1 below. Denver Water may store any Imported Blue River Water, whether released from Dillon Reservoir or diverted directly through the Roberts Tunnel at any existing or future storage facility on the East Slope; provided that the amount of Imported Blue River Water in storage on the East Slope does not exceed 400,000 acre feet at any point in time. This provision and limitation on the amount of Imported Blue River Water does not apply to the storage of return flows from the use or reuse of Imported Blue River Water either directly or by exchange to any existing or future storage facility.

C. Denver Water's Exchanges.

1. Decreed Exchanges. The West Slope Signatories agree that Denver Water may operate its exchanges from Williams Fork Reservoir to Dillon Reservoir decreed in the Blue River Decrees, Civil Action No. 657, and C.A. 1430, and Case No. 88CW382; and from Williams Fork Reservoir to Williams Fork Diversion Project (Jones Pass) and to the Fraser River Diversion Project decreed in Civil Action Nos. 657 and 1430).
2. Undecreed Exchanges from Dillon Reservoir. The West Slope Signatories will not object to Denver Water's continued operation of and a decree for exchanges from Dillon Reservoir to Williams Fork Reservoir with an appropriation date of April 25, 1983, and to existing points of diversion for the Fraser River and Williams Fork Diversion Projects with an appropriation date of September 20, 1966, provided that the exchanges are exercised and operated and the decree contains terms and conditions that are at least as protective as the following:
  - a. An application for the exchanges was filed in Case No. 11CW21, the exchanges will be administered with a priority date of 2010, and the priority date or dates of the exchanges will not be antedated pursuant to C.R.S. § 37-92-305(10). The West Slope Signatories may file a statement of opposition but shall limit their opposition to ensuring that the protective conditions in this paragraph are part of the decree.
  - b. The maximum amount of the exchange to the Williams Fork Reservoir is limited to a rate of 148 cfs (absolute) based on diversions on April 25, 1983 and an annual volume of 6,095 af (absolute) based on diversions in water year 1990. The maximum amount of the exchange to the existing points of diversion on Fraser River and Williams Fork River Diversion Projects is limited to a rate of 56 cfs (absolute) based on diversions on September 9, 1985 and an annual volume of 8,747 af (absolute) based on diversions in water year 1967.
  - c. The exchanges from Dillon Reservoir to Williams Fork Reservoir or from Dillon Reservoir to the Fraser River and Williams Fork River Diversion Projects shall not be exercised or operated if the Division 5 Engineer advises Denver Water that curtailment of the exchanges is required to satisfy all senior instream flows existing in 2009, and located in the applicable stream reach affected by the diversion, including the following CWCB instream flow decrees:
    - 1) Colorado River (80CW448, 80CW446, 80CW447)
    - 2) Williams Fork River 79CW185, 79CW183, 79CW181, 79CW180, 79CW175, 79CW173, 79CW172, 79CW170, 79CW169, 79CW168, 79CW165)

(a) Bobtail Creek (79CW164, 79CW163)

(b) Steelman Creek (79CW167, 79CW166).

3) Fraser River (90CW308B, 90CW308, 90CW315, 90CW307, 90CW302, 90CW289)

(a) St. Louis Creek (90CW316, 90CW317A, 90CW317, 90CW304)

(b) Vasquez Creek (90CW318)

(c) Ranch Creek (90CW305, 90CW306A, 90CW306, 90CW314)

(d) Cabin Creek (90CW312)

(e) Hamilton Creek (90CW311)

(f) Meadow Creek (90CW310, 90CW309)

- d. The provisions in this paragraph IV. C.2. shall apply irrespective of whether any of the CWCB instream flow decrees listed in Article IV.C.2.c above contain provisions that might otherwise protect Denver Water's existing exchanges through these reaches from impairment by CWCB instream flows in the reaches.

D. 1978 Judgment and Decree. The Signatories agree that operations by which Denver Water diverts under its 1946 Roberts Tunnel direct flow right prior to the completion of the annual fill of Green Mountain Reservoir are consistent with the Blue River Decree, including the Supplemental Judgment and Decree entered in the Consolidated Cases on February 9, 1978, so long as such operations are in accordance with the Green Mountain Reservoir Administrative Protocol (Attachment R-1). The Signatories will cooperate to obtain such administrative and judicial approvals as are necessary to ensure that the Protocol is made legally binding and enforceable and is implemented.

E. Substitution Agreements. The West Slope Signatories agree to support and execute, as appropriate, all future renewals of the Memorandum of Agreement among the U.S. Bureau of Reclamation, Northern Colorado Water Conservancy District, Colorado River Water Conservation District, and Denver Water dated December 30, 1991, regarding substitutions from Woford Mountain Reservoir (MOA No. 2-AG-60-01550), provided that such renewals are consistent with this Agreement and are reasonably the same in form and substance as the existing MOA, as modified by the July 21, 1992 Agreement Amending Lease Agreement between Colorado River Water Conservation District and City and County of Denver. The West Slope Signatories reserve the right to object to the addition of new substitution, exchange or replacement sources, or amounts other than those specified in Article III.A.4 not currently decreed for such use by Denver Water



- F. Straight Creek Project. Summit County agrees to extend and not challenge the validity of the 1041 permit for Denver Water's Straight Creek project dated July 17, 1985, so that a new permit will not be required for Denver Water to proceed with the project as permitted in 1985 as described in Attachment O. Consistent with its 1996 Resource Statement, Denver Water agrees that it will develop the Straight Creek project only with the prior approval of the Summit County Commissioners and the River District.
- G. Wolford Mountain Reservoir.
1. Repayment Water. With regard to the 1000 acre feet of Repayment Water ("WMR 1KAF") referenced in paragraph 20(b) of the Agreement Amending Lease Agreement between the River District and Denver Water, dated July 12, 1992 ("Wolford Agreement"), the River District and Denver Water agree that the River District shall provide and account for the WMR 1KAF as follows:
    - a. The first 500 acre feet of the WMR 1KAF, along with the 613 acre feet of water available to Denver Water under paragraph 20(c) of the Wolford Agreement, shall be made available every year and used by Denver Water for substitution purposes.
    - b. The remaining 500 acre-feet of the WMR1KAF shall be stored and used for substitution purposes in the same manner as the water storage attributable to Denver Water's 40% interest in the Wolford Mountain Reservoir water right and storage space (a volume of 24,000 acre-feet), on a pro rata basis (500 acre-feet = 0.83% of 60,000 acre-feet, so water would be stored at a rate of 40.83%).
  2. Second Enlargement of Wolford. Denver Water agrees to waive any right to participate in the second enlargement of Wolford Mountain Reservoir, in the same or a lesser amount as claimed in Case No. 03CW302, Water Division 5. The River District agrees that Denver Water is not obligated to pay any capital or OM&R costs associated with a second enlargement.
  3. 1041 Permit for Wolford. The River District and Denver Water agree to work cooperatively as co-permittees to obtain any amendment to the Grand County 1041 permit for Wolford Mountain Reservoir that may be necessary (1) to address current operations of Wolford Mountain Reservoir under the Wolford Agreement; and (2) to effectuate the applicable provisions of this Agreement. Upon application for such a permit amendment, Grand County agrees to cooperate to process an amendment as quickly as possible.
  4. Replacement Water. In addition to water in Wolford Mountain Reservoir that Denver Water is currently entitled to use for substitution and other purposes, this Agreement requires that Replacement Water be available to Denver Water as a condition of several water deliveries under Article III.

The estimated maximum volume of Replacement Water that might be required under this Agreement is 2,590 acre-feet in any single substitution year. Under the 1992 Clinton Agreement and the 1985 Summit Agreement, West Slope entities have agreed to provide Replacement Water to Denver Water in an amount estimated to be 1,249 acre-feet annually, which could be supplied from Wolford. The Signatories wish to ensure that Wolford Mountain Reservoir could be used to provide the full 3,839 acre feet of Replacement Water, even though it is anticipated that Replacement Water will be provided to Denver Water from other sources. The Signatories agree to cooperate to implement acceptable amendments or approvals as might be necessary to ensure that the 1991 MOA between the Bureau of Reclamation, Denver Water, the Colorado River Water Conservation District and the Northern Colorado Water Conservancy District; the decree in Case No. 91CW252; and the 1041 permit for Wolford Mountain Reservoir allow the use of the full 3,839 acre feet of Replacement Water, in addition to the water in Wolford the Denver Water is currently entitled to use for substitution and other purposes.

The West Slope Signatories agree that Replacement Water provided by the West Slope to Denver Water from Wolford Mountain Reservoir as Replacement Water under the 1985 Summit Agreement, the 1992 Clinton Agreement and this Agreement is a permissible use of Wolford Mountain Reservoir by Denver Water.

- H. Storage in Gross and Ralston Reservoirs. The West Slope Signatories shall not contest Denver Water's storage of Williams Fork and Cabin-Meadow Creek water as decreed in Case No. 657, in Gross and Ralston Reservoirs. The agreement of the West Slope Signatories in this paragraph is premised on circumstances and consideration unique to this Agreement.
- I. Deliveries of Water to the City of Golden. The West Slope Signatories shall not contest whether Denver Water's delivery of water to the City of Golden under the contract dated May 10, 2007, is consistent with Denver's water rights decrees.
- J. Moffat Project Permitting. With the exception of Grand County (which is a consulting agency in the NEPA process for the Moffat Project), the West Slope Signatories agree that the concerns raised in the comment letters they submitted on the October 2009 Draft EIS for the Moffat Project will be resolved by the combination of (1) the benefits that will accrue to the West Slope pursuant to the terms of this Agreement, plus (2) the environmental mitigation requirements and conditions that will be imposed by the federal and state permitting agencies in the permits and approvals issued for the Moffat Project. Accordingly, the West Slope Signatories other than Grand County agree not to oppose the issuance of any local, state and federal approvals for the Moffat Project, including those permits listed in Attachment P. Nothing in this paragraph IV.J shall affect Grand County's continuing actions as a consulting agency in the NEPA process on the Moffat Project. Nor shall anything in this paragraph IV.J be deemed a waiver of rights a Signatory may have

upon any breach of this Agreement.

- K. Water Rights in Eagle River Basin. The West Slope Signatories that are parties to the cases involving Denver Water's Eagle-Colorado water rights agree to implement the settlement of Denver Water's Eagle-Colorado diligence case and to facilitate the water court case changing the location of Denver Water's Piney River water right to State Bridge. All the West Slope Signatories agree not to oppose a water court application changing the location of Denver Water's Piney River water right to State Bridge.
- L. Water Rights in Williams Fork Basin. The West Slope Signatories shall not contest and West Slope Signatories that are parties to the cases will stipulate to the entry of the proposed decrees included as Attachment Q in Case No. 2007CW031 (Jones Pass) making 245 cfs absolute and finding diligence for the remaining conditional amount; and finding diligence in Case Nos. 2007CW030 (Carr Ditch) and 2007CW029 (Darling Creek, Williams Fork Power, Moffat Tunnel).
1. Waiver of Claims. The West Slope Signatories agree that claim preclusion applies to all claims and objections to Denver Water's operations under the decrees listed in this Article IV.L raised or which could have reasonably been raised in the cases listed above, or which could have reasonably been raised in previous diligence proceedings for these water rights. The signatories agree that the resolution of the current diligence proceeding constitutes an adjudication on the merits of their statements of opposition.
  2. Claims Not Precluded. The West Slope Signatories may file statements of opposition in future proceedings under the water rights listed above limited to: 1) Denver Water's compliance with this Agreement, and 2) claims that were not and could not reasonably have been raised in prior proceedings.

## **ARTICLE V**

### **Green Mountain Reservoir Administration**

- A. Resolution of Disputes. The Signatories agree that resolution of long-standing disputes regarding the proper administration of water rights adjudicated in the Blue River Decree, including the water rights of Green Mountain Reservoir and the Green Mountain Powerplant, will provide significant benefits for water users on both the east and west slopes of Colorado, including maximizing beneficial use of the waters of the state, reducing litigation costs, and providing clarity as to water rights administration. Certain Signatories have negotiated with other entities a protocol to resolve the long-standing disputes, entitled the Green Mountain Reservoir Administrative Protocol ("Protocol"), a copy of which is attached to this Agreement as Attachment R-1.

The primary purpose of the Protocol is to clarify and implement certain provisions of the Blue River Decree by (1) setting forth a protocol for, among other things: (a) the preparation, review, and modification of a fill schedule for Green Mountain Reservoir; (b) definition and administration of the fill season for the 1935 First Fill Storage Right; (c) administration of water rights during the fill season; and (d) operation of the Green Mountain Reservoir Water Rights and the Cities' water rights in response to downstream calls senior to the Cities' water rights; (2) making as much water as possible available for upstream use, including use by the Cities, without impairment of the fill of Green Mountain Reservoir; (3) providing a clear definition of the Cities' replacement obligation operations, including Denver Water's obligations to the City Contract Beneficiaries as defined in Attachment R-1; (4) ensuring that the administration of water rights does not allow the water rights of the Cities to "hide behind" or otherwise benefit from the Green Mountain Reservoir Water Rights; (5) eliminating or reducing as much as possible, the extent to which the Green Mountain Reservoir 60 cfs bypass is accounted against the fill of the Green Mountain Reservoir Storage Rights; and (6) addressing the relative priority of the Green Mountain Water Rights, the Cities' water rights, and the Climax's C.A. 1710 rights in a manner agreed by the Blue River Decree parties and Climax; all in a manner that is consistent with the Blue River Decree.

- B. Implementation of Green Mountain Administrative Protocol. The following Signatories are among the parties to an agreement entitled the Green Mountain Reservoir Administrative Protocol Agreement (the "Protocol Agreement", a copy of which is attached to this Agreement as Attachment R-2: Denver Water, the River District, Middle Park Water Conservancy District, Grand Valley Water Users Association, Orchard Mesa Irrigation District, Ute Water Conservancy District, Palisade Irrigation District, and Grand Valley Irrigation Company. The Protocol Agreement provides, among other terms and conditions, that these Signatories (and certain other parties to the Protocol Agreement) approve the Protocol and agree to its implementation. Nothing in this Agreement shall modify the obligations of the parties to the Protocol Agreement in accordance with the terms and conditions contained therein.
  
- C. Non-opposition to Green Mountain Administrative Protocol. The following Signatories are not parties to the Protocol Agreement: the Boards of County Commissioners of Eagle, Grand, and Summit Counties, Clinton Reservoir Company, Eagle Park Reservoir Company, Eagle River Water and Sanitation District, Upper Eagle Regional Water Authority, Mesa County Irrigation District, City of Glenwood Springs, and City of Rifle. These Signatories agree not to oppose the implementation of the Protocol in any adjudication or other proceeding deemed necessary by the parties to the Protocol Agreement to make the Protocol legally binding and effective, or to confirm the consistency of the Protocol with the Blue River Decree, so long as the Protocol is substantially consistent with Attachment R-1. These Signatories may support the Protocol in any proceedings in which they have standing to participate.

**ARTICLE VI**  
**Shoshone Call**

A. Shoshone Call.

1. The Shoshone Power Plant, which is owned and operated by Public Service Company of Colorado, d/b/a/ Xcel Energy ("Xcel"), is located on the mainstem of the Colorado River in Glenwood Canyon. The Shoshone Power Plant produces hydroelectric energy by means of two water rights, the 1902 Shoshone Senior Right in the amount of 1250 cfs and the 1929 Shoshone Junior Right in the amount of 158 cfs (together, "Shoshone Water Rights").
2. When the Shoshone Power Plant is operating, the Shoshone Water Rights command the flow in the river by exercising the Senior Shoshone Call against upstream junior water rights. When the Senior Shoshone Call is on, upstream reservoirs cannot store water and junior water rights cannot divert unless they provide an equal volume of replacement water to the stream. Over the years, many water users have come to rely on the river flow regime created by the Senior Shoshone Call ("Shoshone Call Flows").
3. Whenever the Shoshone Power Plant is subject to a shutdown for repair, maintenance, or other reasons ("Shoshone Outage"), the Shoshone Call cannot be exercised, and Shoshone Call Flows may not be present in the river.
4. The Signatories agree that a Shoshone Outage could adversely affect water users and recreation interests on the Colorado River. Accordingly, the Signatories agree to implement the operational procedures described in this section during a Shoshone Outage (the "Shoshone Outage Protocol") to mitigate such potential adverse effects. The Signatories also agree to cooperate to achieve permanent management of the flows of the Colorado River as described in Article VI.C, whether or not the Shoshone Power Plant remains operational.

B. Shoshone Outage Protocol.

1. Outage During Irrigation Season. If a Shoshone Outage occurs during the period from March 25 through November 10 (Irrigation Season) and results in a flow of the Colorado River at the Dotsero Gauge below 1,250 cfs (not including any water released for endangered fish species purposes), then the River District, Middle Park and Denver Water agree that they will operate their systems as if the Senior Shoshone Call were on the River, resulting in a flow of not more than 1250 cfs at the Dotsero Gauge (not including any water released for endangered fish species purposes). The Shoshone Outage Protocol

will not apply to Shoshone Outages that occur during certain very dry Irrigation Seasons, as described in the following subparagraphs.

- a. The very dry Irrigation Seasons occur when the two conditions for a water shortage, as defined in paragraph 2 of the 2007 Shoshone Agreement, are met. Denver Water will make projections in March prior to March 25, and again in early May and late June to determine whether a water shortage is occurring.
- b. If a projection made under subparagraph a above in March or May meets the conditions for a water shortage, then the Shoshone Outage Protocol will not apply during the period from that projection to the next projection. If a projection made in March or May does not meet the conditions for a water shortage, then the Shoshone Outage Protocol will apply during the period from that projection to the next projection; provided, however, that the Shoshone Outage Protocol will not apply during any period when the Shoshone Call is relaxed under the 2007 Shoshone Agreement.
- c. If the projection made in June under subparagraph a above meets the conditions for a water shortage, then the Shoshone Outage Protocol will not apply during the remainder of the Irrigation Season that year. If the projection made in June does not meet the conditions for a water shortage, then the Shoshone Outage Protocol will apply during the remainder of the Irrigation Season that year.

2. Green Mountain Reservoir. The Signatories will cooperate with one another and use their best efforts to negotiate a separate agreement with the U. S. Bureau of Reclamation ("Reclamation") pursuant to which Reclamation would agree that if a Shoshone Outage occurs, it will continue to operate Green Mountain Reservoir as if the Senior Shoshone Call were on the river. Such agreement with Reclamation shall be subject to terms and conditions as to which the Signatories and Reclamation shall agree, including the following

- a. Any water released from storage in Green Mountain Reservoir would be debited to the appropriate account within the reservoir's 100,000 Acre-Foot Pool to which the releases were attributed, e.g., the historic users pool identified in paragraph 2 of Reclamation's January 23, 1984 Operating Policy for Green Mountain Reservoir,
- b. Water that would have been released from the 52,000 Acre-Foot Replacement Pool had the Senior Shoshone Call been on the river shall be debited as discretionary power releases from the 100,000 Acre-Foot

Pool, unless other arrangements are made with Reclamation and the Northern Colorado Water Conservancy District.

- c. Reclamation will not be obligated to make releases from storage pursuant to this provision if water is not available in the 100,000 Acre-Foot Pool or if the total volume of Green Mountain Reservoir storage accounts is less than an amount to be agreed upon by the West Slope Signatories and Reclamation.

- 3. Outage During Winter Season. If a Shoshone Outage occurs during the period from November 11 to March 24 (Winter Season): (1) as a result of conditions other than scheduled maintenance on the Shoshone power plant facilities, and (2) if flows at the Dotsero Gauge are at or below 900 cfs, the River District and Denver Water agree that they will operate their systems as if the Senior Shoshone Call were on the river, subject to the following:

The Shoshone Outage Protocol will not apply fully to Shoshone Outages that occur during certain very dry Winter Seasons, when the overall storage in Denver Water's system is less than 79% of capacity on November 1. For purposes of this paragraph, the reservoirs that will be considered in determining overall storage are those reservoirs listed in Exhibit A to the 2007 Shoshone Agreement, but excluding any reservoirs under storage restrictions due to maintenance, repairs or orders from the Colorado State Engineer.

- a. If the storage is less than 79%, but more than 63%, then the Shoshone Outage Protocol will be applied at half the normal effect during that Winter Season. For example, if Denver Water would be required to bypass or replace 60 c.f.s. under the full operation of the Shoshone Outage Protocol, Denver Water would be required to bypass or replace 30 c.f.s. if the Shoshone Outage Protocol is applied at half the normal effect.
- b. If the storage is equal to or less than 63%, but more than 49%, then the Shoshone Outage Protocol will be applied at one-fourth the normal effect during that Winter Season.
- c. If the storage is equal to or less than 49%, then the Shoshone Outage Protocol will not be applied during that Winter Season.

- 4. The Signatories will cooperate with one another and use their best efforts to:
  - a. Obtain the agreement of other diverters to participate in the Shoshone Outage Protocol.
  - b. Obtain the agreement of the State of Colorado water administration officials to shepherd water released from upstream reservoirs or



otherwise bypassed from upstream water rights under the Shoshone Outage Protocol to the Grand Valley under a donated instream flow, a municipal recreation delivery contract or other acceptable arrangement, and to refrain from accounting for releases from storage under the Shoshone Outage Protocol as storable inflow.

C. Permanency of Shoshone Call Flows.

1. It is the goal of the Signatories to achieve permanent management of the flow of the Colorado River so that the flow mimics the Shoshone Call Flows, whether or not the Senior Shoshone Call is on the river and whether or not the Shoshone Power Plant remains operational.
2. Denver Water and the River District agree to operate their systems on a permanent basis under the Shoshone Outage Protocol described in Article VI.B, even if the Shoshone Power Plant ceases operations altogether, and regardless of whether the plant is acquired under Article VI.D, subject to the following conditions:
  - a. The relaxation provisions described in Article VI.E below remain in full force and effect.
  - b. The Shoshone Outage Protocol would not apply for 17 cumulative days during the Winter Season, to duplicate the effect of the current scheduled outages for maintenance.
3. The Signatories agree to use their best efforts to work with Xcel Energy, other diverters, Reclamation and the State of Colorado water administration officials to devise and implement a mechanism or combination of mechanisms that will permanently preserve the Shoshone Call Flows. In addition to the amounts provided in Article VI.E.1.c., Denver Water agrees to pay one-third of the costs, not to exceed \$100,000, incurred by West Slope Signatories to begin the process of implementing a mechanism to preserve the Shoshone Call Flows on a permanent basis. If total costs exceed \$300,000, the Signatories will confer with regard to further actions.

D. West Slope Acquisition of Shoshone Assets

1. West Slope water users believe that one means to ensure the permanent maintenance of the Shoshone Call is the acquisition and operation of the Shoshone Power Plant and Shoshone Water Rights (the “Shoshone Assets”) by a West Slope governmental entity that is mutually acceptable to the West Slope Signatories (“West Slope Governmental Entity”).
2. Within twenty-four (24) months after the effective date of this Agreement (“Investigation Period”), any of the West Slope Signatories may agree among



themselves and at their own cost, to undertake and complete an investigation of the viability of purchasing the Shoshone Assets and operating the Shoshone Power Plant (the “Initial Investigation”). The Initial Investigation may include direct negotiations with Xcel; the hiring of consultants necessary to evaluate the Plant’s physical and financial condition and the value of the Shoshone Assets; an evaluation of the legal and regulatory requirements that must be met in order to transfer the Shoshone Assets to a West Slope Governmental Entity; an evaluation of the appropriate West Slope Governmental Entity to acquire and operate the Shoshone Assets and the steps necessary to create such an entity, if a new entity is to be created; and any other matters that the West Slope Signatories believe are necessary or desirable. Denver Water shall assist the West Slope Signatories upon request in undertaking and completing the investigations during the Investigation Period. The West Slope Signatories may agree among themselves to extend the Investigation Period.

3. If the Initial Investigation determines that it is feasible for a West Slope Governmental Entity to acquire and operate the Shoshone Assets and if Xcel is willing to sell or otherwise transfer the Shoshone Assets to a West Slope Governmental Entity, the West Slope Governmental Entity may pursue the transfer of the Shoshone Assets. Denver Water agrees that it will support such acquisition and will take such reasonable actions as may be necessary to assist the West Slope Governmental Entity in completing the acquisition of the Shoshone Assets. Upon notification by any of the West Slope Governmental Entity of its intent to acquire the Shoshone Assets, Denver Water agrees not to assert its right under paragraph 13 of the 2007 Shoshone Agreement regarding the method of disposition of the Shoshone Water Rights.
4. Denver Water shall not be obligated to pay any of the purchase price for the Shoshone Assets if other mechanisms are reasonably available to preserve the Shoshone Call Flows. If other mechanisms are not reasonably available, and purchase of the Shoshone Assets is determined to be the best viable option to preserve the Shoshone Call Flows, then Denver Water agrees to contribute to the purchase price in a negotiated amount that is proportionate to its share of the overall benefits created by the purchase, and reasonable as compared to the financial contributions to the purchase price by other parties.
5. If a West Slope Governmental Entity acquires the Shoshone Assets, the Shoshone Call relaxation provisions described in Section V.I.E below, shall remain permanently in effect.

E. Relaxation of Shoshone Call.

1. Existing Call Relaxation Agreement. Denver Water and Xcel are parties to the 2007 Shoshone Agreement, a copy of which is attached as Attachment S.

The 2007 Shoshone Agreement currently is set to expire on December 31, 2032. The Signatories agree that the Shoshone Call relaxation provisions of the 2007 Shoshone Agreement shall remain in effect during its term and any renewal thereof.

- a. Denver Water agrees that, except as provided in Articles V and VI.E.2, it will not seek any relaxation of the Shoshone Call, other than a renewal of the specific provisions of the 2007 Shoshone Agreement beyond the year 2032.
- b. The West Slope Signatories will not oppose a renewal of the 2007 Shoshone Agreement, provided that the Shoshone Outage Protocol remains in effect.
- c. If the relaxation of the Shoshone Call is made permanent and Denver Water's yield is increased as a result, Denver Water agrees that 500 acre-feet of the increased yield (Relaxation Water) will be made available as potable water for use as blending water in a project using reusable return flows as described in Article I.B.2.e. The water supply created by the Relaxation Water will be added to the list of permissible fixed-amount contracts listed in Article I.B.1. In return for the availability of the Relaxation Water, the recipients must agree to pay the 2010 System Development Charge (SDC) applicable to potable water served outside the Combined Service Area. Denver Water will transmit the SDCs attributable to the Relaxation Water into a Relaxation Water Fund to be used (a) to contribute to the acquisition of the Shoshone Assets under Article VI.D; or (b) to implement a mechanism or combination of mechanisms that will permanently preserve the Shoshone Call Flows. It is anticipated that advance financing may be needed to accomplish the purposes described in this paragraph. The Signatories agree to consult with each other on an appropriate financing mechanism, should one be needed. It is also anticipated that the SDCs for the Relaxation Water may be paid pursuant to a payment schedule. If the Relaxation Water Fund is not fully expended for the purposes described in this paragraph, the money shall be used to contribute to the costs of a future cooperative project, determined by the River District and Denver Water to be beneficial to both the West Slope and the East Slope.

2. Expansion of Call Relaxation Period for Severe Drought Conditions. The 2007 Shoshone Agreement provides that the Shoshone Call may be relaxed during the period from March 14 until May 20, inclusive ("Call Relaxation Period"), under the conditions specified in the 2007 Shoshone Agreement. Denver Water desires to extend the Call Relaxation Period back into the winter months during extreme drought periods. The West Slope Signatories agree to support the amendment of the 2007 Shoshone Agreement to provide

for the relaxation of the Senior Shoshone Call down to 704 cfs (a “one-turbine call”) for an expanded period during the winter months (“Expanded Call Relaxation Period”), subject to the following terms and conditions:

- a. An Expanded Call Relaxation Period may occur under either of the following circumstances:
  - i. The Senior Shoshone Call may be relaxed to a one-turbine call beginning on November 11 if Denver Water has banned outdoor residential lawn watering beginning no later than August 1, and the ban has remained in effect continuously from its inception through November 11.
  - ii. The Senior Shoshone Call may also be relaxed to a one-turbine call beginning three (3) days after the date that the Denver Water Board formally adopts a drought declaration requiring that outdoor residential lawn watering be prohibited during the following irrigation season. The call relaxation under this section only applies to the period from November 11 until March 14 of the following year.
- b. Denver Water will pay for power replacement costs as provided for in the 2007 Shoshone Agreement.
- c. Denver Water will provide ten percent (10%) of the net water savings as defined in the 2007 Shoshone Agreement for use by West Slope Signatories. The West Slope Signatories will allocate the 10% as they may determine pursuant to any future agreement among them.
- d. The Expanded Call Relaxation Period will end the earlier of:
  - i. The date Denver Water rescinds its ban on outdoor residential lawn watering; or
  - ii. The date a Cameo Call is placed on the river; or
  - iii. March 14 of the year following implementation of the Extended Call Relaxation Period if implementation occurs on or prior to December 31; or March 14 of the year in which the Expanded Call Relaxation Period was implemented if implementation occurs on or after January 1.
- e. Any relaxation of the Shoshone Call after March 14 of any given year shall occur only as provided in the 2007 Shoshone Agreement.

3. Call Relaxation Mitigation. The \$500,000 to be placed in a special fund by Denver Water pursuant to Article III.G of this Agreement shall be managed and utilized as follows:
- a. The proceeds of this fund will be used to help offset the impacts of, or prepare for, a call relaxation pursuant to the 2007 Shoshone Agreement or during the Expanded Call Relaxation Period, or a Shoshone Outage during the Winter Season pursuant to Section VI.B.3, above.
  - b. In order for a municipal water provider to access the funds described in this subsection, the provider must either be a signatory to this Agreement or must be located in Garfield County and agree to be bound by the terms and conditions of this Agreement.
  - c. The West Slope Signatories at their discretion may utilize funds available to any of them pursuant to Article III of this Agreement or the West Slope Fund to either replace or increase the funding for this special fund as may be necessary or desirable from time to time.
- F. Environmental and Recreational Pilot Project. The Signatories agree to evaluate a pilot project to determine the feasibility of implementing a partial Shoshone Call relaxation in non-critical winter months and dedicating the saved water to environmental and recreation purposes.
- G. Support for Glenwood Springs RICD. The City of Glenwood Springs currently has whitewater features located below the confluence of the Colorado River and the Roaring Fork River near Glenwood Springs, Colorado. Glenwood Springs currently does not have an adjudicated water right for these white water features but anticipates filing for one at some point in the future. In addition, Glenwood Springs anticipates creating additional white water features on the reach of the Colorado River between the Shoshone Power Plant and South Canyon on the main stem of the Colorado River. Denver Water will not oppose the filing of a water rights application for a Recreational In-Channel Diversion (“RICD”) for the existing and proposed structures by Glenwood Springs; provided that any such application filed for any proposed structure above the confluence of the Roaring Fork and Colorado Rivers does not: (1) Claim a flow rate that exceeds the amount of water needed to satisfy the senior Shoshone Call for 1,250 cfs at the Dotsero gage; (2) Seek an amount of water in excess of that needed to replicate historic operations under the Senior Shoshone Call; or (3) Impair Denver's ability to divert under Article VI.

As to structures located below the confluence of the Roaring Fork and Colorado Rivers, Denver and Glenwood Springs recognize that the contributing flows of the two rivers make it difficult to predict the exact effect of a RICD on flows above the confluence. Glenwood Springs agrees to consult with Denver regarding such application prior to filing.

**ARTICLE VII**  
**Bilateral Commitments**

- A. Water Rights Peace Pact. With regard to all conditional water rights presently owned by the Signatories to this Agreement, and listed in Attachment T, the Signatories agree to withdraw any statements of opposition in each others' pending diligence filings and not to oppose each other's pending or future diligence applications, including applications to make the listed conditional rights absolute, provided, however, that the parties may file statements of opposition to such applications for the limited purpose of ensuring compliance with the obligations of this agreement.
- B. Water Conservation. The Signatories to this Agreement will cooperate to develop and promote best management practices for water conservation appropriate for the various types of water use and regional geographic locations within the state. The Signatories agree to adopt any best management practices developed under this paragraph for their own water uses.
- C. Compact Curtailment Plan. The Signatories agree to cooperate in good faith toward the development of a plan to avoid a potential curtailment of existing Colorado water rights under the provisions of the 1922 Colorado River Compact and the 1948 Upper Colorado River Compact, and to mitigate the impacts of any unavoidable curtailment. If joint efforts do not result in agreement on such a plan, each Signatory will take such actions as it may deem necessary to protect its water rights from curtailment.
- D. Freedom to Operate. So long as the Signatories meet all of their obligations under this Agreement, their independent legal obligations and any contemporaneous implementing agreements, the Signatories agree that they do not have an obligation to operate their system or to conduct their decision-making in any particular way.
- E. No Third Party Beneficiaries. It is expressly understood and agreed that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to the Signatories, and nothing contained in this Agreement shall give or allow any such claim to a right of action by any third person. It is the expressed intention of the Signatories that any person other than a signatory receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.
- F. No Precedent. The various commitments and agreements of the Signatories to this agreement are premised on circumstances and considerations unique to this Agreement. Nothing in this Agreement shall be construed as establishing any legal precedent regarding any matters not expressly addressed in this Agreement. The Signatories agree that they do not intend this Agreement to have the effect of precedent or preclusion on any factual or legal issues in any matter not expressly addressed in this Agreement.
- G. Risk Sharing. A fundamental premise of this Agreement is that the Signatories will not actively seek to undermine, or encourage others to undermine, the Signatories' respective interests and resources that have been committed, compromised, dedicated, or otherwise addressed in this Agreement. For purposes of this paragraph, "Adverse Action" means an action of a legislature, court, administrative agency, regulatory body or other governmental

entity that would cause a material adverse impact to a Signatory's interests or resources that have been committed, compromised or otherwise addressed in this Agreement. In the event that an Adverse Action is proposed or is likely to occur, the Signatory whose interests or resources would suffer a material adverse impact will notify the other Signatories. The Signatories will meet and discuss in good faith the potential detrimental effect of such Adverse Action, with the goal of determining whether any action by one or more Signatories could avoid the Adverse Action or mitigate its impact on the affected Signatory. Each party agrees to evaluate in good faith whether it can implement changes in its operations or undertake other efforts that would achieve this goal, and to implement any such efforts as may be agreed to by the Signatories.

- H. Preservation of Governmental Powers. Except as specifically provided herein, nothing in this Agreement shall be construed as a limitation on or waiver of any review, approval, or permit authority, or a predetermination of any action taken thereunder, by any governmental or quasi-municipal entity including, without limitation, the legislative or quasi-judicial power or authority of Eagle, Grand and Summit Counties and the City and County of Denver, acting by and through its Board of Water Commissioners.
- I. No Property Interest Created. Any rights created by this Agreement are contractual rights. This Agreement does not create and shall not be construed to create or convey any property interest, including any covenant, easement or servitude, in the real property of any Signatory.
- J. Implementation of this Agreement. In Article IV.A.1, the West Slope Signatories agree not to contest or to stipulate to the entry of the two proposed decrees included in Attachment N, in Case No. 2006CW255 (Roberts Tunnel – N1) and Case No. 2003 CW039 (Dillon Refill – N2), and to support and cooperate in any proceedings necessary to implement the provisions of this Agreement related to the Blue River Decree. The Signatories agree that, upon execution of this Agreement, Denver Water will file an amended application in 2006CW255 (Roberts Tunnel) for approval of the proposed Roberts Tunnel decree in Attachment N1 and publish supplemental notice thereof in the Division 5 Water Court. The Signatories agree that the amended application in Case No. 2006CW255 and the proposed Roberts Tunnel decree in Attachment N1 are among the mechanisms that will be used to implement Article III.A.3. If statements of opposition are filed as a result of the supplemental notice, the Signatories agree to cooperate to resolve any issues raised by such statements and to finalize the proposed Robert Tunnel decree in 2006 CW255.
  - 1. The Signatories agree that the proposed Roberts Tunnel decree in Attachment N1 will not be presented to the federal court for entry of final judgment until the earlier of the following:
    - a. The U. S. Bureau of Reclamation has executed the “separate agreement” described in Article VI.B.2, pursuant to which it agrees “that if a Shoshone Outage occurs, it will continue to operate Green Mountain Reservoir as if the Senior Shoshone Call were on the river.”



- b. The Signatories agree that the goal of Article VI.C.3 has been achieved, such that the Signatories, other water users, and the State of Colorado water administration officials have devised and implemented “a mechanism or combination of mechanisms that will permanently preserve the Shoshone Call Flows.” If the agreed-upon mechanism requires a water court application, achievement of the goal for purposes of this paragraph 2.b is defined as the entry of a final decree approving the mechanism by the water court, which is no longer subject to appeals.
  - 3. Several provisions of this Agreement are contingent upon the Resolution of Blue River Decree Issues, which is defined in Article III.A.2 and the Definitions as the entry of final judgments and decrees no longer subject to appeals in 06CW255 and 03CW039. The Signatories acknowledge that any delay required by Article VII.J.2 above in the entry of a final judgment will cause an equivalent delay in implementing the various provisions of this Agreement that are contingent upon Resolution of Blue River Decree Issues.
  - 4. The Signatories acknowledge that they are contractually bound upon the Effective Date of this Agreement, regardless of any delay in the entry of a final judgment in Case No. 06CW255 required by Article VII.J.2 above.
  - 5. The Signatories agree to coordinate and provide reasonable assistance to each other in obtaining any necessary license, permit or approval to carry out this Agreement, including those described in this Article VII.J. The Signatories agree that not every issue and problem can be foreseen and dealt with in advance, and that cooperation will be needed to handle future events that might impair implementation of particular provisions of this Agreement. If such an impairment of a particular provision occurs, the Signatories agree to cooperate in good faith in a reasonable manner to develop alternative means to accomplish as nearly as possible the desired outcome of the provision in question.
- K. Severability or Reform of Invalid Provisions. Wherever possible each provision of this Agreement shall be interpreted and implemented in such manner as to be effective and valid under applicable law. If any provision or portion of this Agreement is determined to be invalid or unenforceable, the remaining provisions shall remain in full force and effect unless the remaining provision’s effectiveness is explicitly dependent upon the invalid or unenforceable provision. The Signatories agree to reform this Agreement to replace any such invalid or unenforceable provision with a valid and enforceable provision that comes as close as possible to the intention of the stricken provision. The provisions of this Agreement shall be reasonably and liberally construed to achieve the intent of the Signatories.
- L. Venue. Venue for resolution of any dispute of water matters under this Agreement resulting in litigation shall be the District Court, Colorado, for the appropriate Water Division or federal district court, as appropriate under the Blue River Decree. Venue for all other matters under this Agreement resulting in litigation shall be the Colorado District Court for the county in which any defendant resides.

- M. Conflict Resolution. The Signatories agree that if a dispute arises between Denver Water and a West Slope Signatory, the affected Signatories will confer in good faith and endeavor to resolve the concern. If the affected Signatories reach an impasse, they will select a neutral third party mediator who would seek an acceptable voluntary solution to the conflict. For conflicts that involve a technical or scientific matter, the neutral third party mediator may select an independent technical or scientific expert, acceptable to the Signatories involved in the mediation, to review and make a recommendation on the matter. If the conflict cannot be resolved through the efforts of the mediator, then the affected Signatories may pursue any available legal or administrative recourse.
- N. Information Sharing. The Signatories shall maintain records in accordance with their normal procedures with regard to their respective obligations under this Agreement, and shall make such records available to each other upon reasonable request.



**Article VIII**  
**Definitions**

<b>TERM</b>	<b>DEFINITION</b>
1985 Summit Agreement	Agreement between Summit County Board of Commissioners and Denver Water, dated September 19, 1985
1992 Clinton Agreement	Clinton Reservoir - Fraser River Water Agreement, dated July 21, 1992
2007 Shoshone Agreement	Agreement between Denver Water and Public Service Company of Colorado d/b/a Xcel Energy, effective January 1, 2007, concerning reduction of the Shoshone Call
Abstention Provisions	<p>a. Abstain permanently from pursuing or participating in any project that would result in any new depletion from the Colorado River and its tributaries above the confluence with the Gunnison River, including without limitation the Eagle River (with the exception of the Eagle River MOU for Aurora and the Upper Colorado Cooperative Project). Pursuing or participating in a project means seeking formal approval of any aspect of a project in a regulatory or judicial forum, but does not include conducting various planning activities such as feasibility studies.</p> <p>b. Abstain from pursuing or participating in any project that would result in diversions from the Colorado River Basin within Water Divisions Nos. 4 and 6, or downstream from the confluence of the Gunnison and Colorado Rivers in Water Division No. 5 for a period of 25 years. Pursuing or participating in a project means seeking formal approval of any aspect of a project in a regulatory or judicial forum, but does not include conducting various planning activities such as feasibility studies. This abstention period would be reduced to 15 years if, within the first 10 years following execution of this agreement, the NEPA permitting process for the Upper Colorado Cooperative Project has not been initiated. If construction of a cooperative project commences within 20 years from the date of this agreement, then the abstention period under this paragraph would be extended for an additional 10 years (a total of 35 years).</p>
Blue River Decree	The stipulations, judgments, decrees and orders entered in Consolidated Civil Nos. 2782, 5016 and 5017, United States District Court, District of Colorado including determinations of diligence and to make absolute.
Cameo Call	A request to the state water officials to curtail diversions of junior water rights to satisfy any or all of the water rights legally divertible for irrigation and power purposes at the headgates of the Grand Valley Project's Government Highline Canal near Cameo and the Grand Valley

	Irrigation Company's Grand Valley Canal near Palisade. The water rights divertible at these headgates are owned and/or operated by Grand Valley Irrigation Company, Grand Valley Water Users Association, Mesa County Irrigation District, Palisade Irrigation District and Orchard Mesa Irrigation District and are listed on Exhibits A and B to the Stipulation and Agreement dated as of September 4, 1996, in the "Orchard Mesa Check Case," Case No. 91CW247.
Eagle River MOU	The agreement effective December 1, 1997 among the Cities of Aurora and Colorado Springs, Colorado River Water Conservation District, Cyprus Climax Metals Company, and the Vail Consortium consisting of the Eagle River Water and Sanitation District, Upper Eagle Regional Water Authority and Vail Associates, Inc.
Effective Date	The first business day at least seven days after the last Signatory has signed this Agreement.
Environmental Enhancement Project	A project that involves aquatic and riparian species habitat protection or enhancement; wetland creation or enhancement for (1) mined land reclamation or (2) other water quality protection; or watershed protection, including, without limitation, fuel reduction, erosion control or revegetation.
Fraser Collection System	Denver's Water system of diversions, canals, tunnels and other infrastructure located in the headwaters of the Fraser River Basin in Grand County
Grand County Operating Plan	Exhibit B to the 1992 Clinton Agreement
Grand County Water Users	Those entities listed in paragraph 4(c) of the Clinton Agreement
IRP	Denver Water's Integrated Resource Plan, prepared pursuant to the Denver Water Board's October 15, 1996 water resource statement, published in 1997 and updated in 2002
Issuance and Acceptance by Denver Water of Permits Necessary for the Moffat Project	The permits necessary for the Moffat Project are defined to be the 404 permit by the Corps of Engineers; the license amendment by FERC; the section 4(e) conditions and special use permit by the U. S. Forest Service; the 401 certification from the Colorado Water Quality Control Division; and the Boulder County 1041 permit, if one is required. The Denver Water Board must decide, in its sole discretion, whether to accept the permits within 6 months after the last final agency action regarding the permits on this list. If a permit is appealed during the six-month approval period, the deadline for Denver Water to decide whether to accept the permits will be extended until 30 days after the final resolution of the appeal.
Joint Use Project	A water supply project located on the East Slope agreed to by Denver Water and one or more East Slope water suppliers

Moffat Project	Denver Water's Moffat Collection System Project, which is the subject of permit application NWO-2002-80762-DEN, filed with the U. S. Army Corps of Engineers
Moffat Project becomes operational	The capacity of Gross Reservoir has been enlarged, and water has been diverted and stored in the enlarged portion of Gross Reservoir
Resolution of Blue River Decree Issues	The entry of final judgments and decrees in 06CW255, Water Division 5, and in 49-cv-2782, U.S. District Court, and in 03CW039, Water Division 5, that are no longer subject to appeals, in the form of the proposed decrees set forth as Attachment N to this Agreement.
Reusable Return Flows	Flows that return to the river system after the initial beneficial use of water, including reusable effluent, which may be reused or successively used, either directly or by exchange.
Reuse	Use of return flows or effluent directly or by exchange for the same or a different purpose as the initial use.
Senior Shoshone Call	A request to the state water officials to curtail diversions of junior water rights to produce a flow at the Dotsero Gauge of 1250 cfs for power purposes at the Shoshone Power Plant
Service Area	Denver Water's 2010 Service Area as depicted in the map in Attachment B.
Shoshone Call	A request to the state water officials to curtail diversions of junior water rights to produce a flow at the Dotsero Gauge of 1408 cfs for power purposes at the Shoshone Power Plant.
Shoshone Junior Rights	The water rights decreed for and associated with the Shoshone Power Plant (aka the Glenwood Power Canal), adjudicated for 158 cfs on February 7, 1956, with an appropriation date of May 15, 1929.
Shoshone Senior Right	The water right decreed for and associated with the Shoshone Power Plant (aka the Glenwood Power canal), adjudicated for 1,250 cfs on December 9, 1907 with and appropriation date of January 7, 1902.
Signatories	Denver Water, Colorado River Water Conservation District, Middle Park Water Conservancy District, Boards of County Commissioners of Eagle, Grand, and Summit Counties, Clinton Reservoir Company, Eagle Park Reservoir Company, Eagle River Water and Sanitation District, Upper Eagle Regional Water Authority, Grand Valley Water Users Association, Orchard Mesa Irrigation District, Ute Water Conservancy District, Palisade Irrigation District, Mesa County Irrigation District, Grand Valley Irrigation Company, City of Glenwood Springs, and City of Rifle.
Upper Colorado Cooperative Project	A water supply project located on the West Slope, agreed to by Denver Water and the West Slope Signatories to this Agreement, and designed to

	produce water for use on the East and West Slopes, including at least 20,000 acre-feet of average annual diversions for use on the East Slope.
West Slope Charge	A per-acre-foot charge that East Slope recipients of water under Articles I.B.1, I.B.2.e, and I.B.3 agree to pay into the West Slope Fund, to be collected by Denver Water pursuant to a West Slope Charge Agreement, in substantially the form of Attachment D. The payment will be equivalent to the stated percentage of the then-current standard rate for nonpotable or potable water, as applicable, charged by Denver Water to customers outside its Service Area.
West Slope Fund	<p>A fund to be established by December 31, 2011 to serve as the depository of payments of the West Slope Charge. The West Slope Fund will be managed by the Colorado River Water Conservation District, or other trustee acceptable to the parties, and will be used solely for water supply, watershed and water quality projects that benefit the West Slope. No money from the West Slope Fund may be used for litigation costs.</p> <p>a. One-fifth of the West Slope Charge imposed under Articles I.B.1 and I.B.2.e, or 2.5% of the 12.5% (Forest Restoration Funds) will be dedicated to accomplishing the following activities in the watersheds in which Denver Water's facilities in Grand and Summit counties are located:</p> <ul style="list-style-type: none"> <li>• Forest thinning, prescribed fire, tree planting, riparian vegetation improvements, road decommissioning, road improvements, mine reclamation, and other forest and watershed health treatments that benefit water flows or water quality within and below the watershed; and</li> <li>• Aquatic restoration or improvement activities that address sediment loading or other water flow or water quality issues caused directly or indirectly by the pine beetle infestation or other forest health issues.</li> </ul> <p>b. The Forest Restoration Funds shall be split equally into two interest-bearing accounts, one for Summit County and one for Grand County, to be managed by the River District. The River District shall distribute Forest Restoration Funds from the accounts as directed by the counties.</p> <p>c. During the term of the Memorandum of Understanding between Denver Water and the USDA, Forest Service Rocky Mountain Region (USFS) dated July 29, 2010 (MOU), the Forest Restoration Funds shall be used for projects consistent with USFS activities in the Sulphur and Dillon Ranger Districts that are included in the August 19, 2010 5-Year Operating Plan that supports the MOU, as determined by agreement between Denver Water and the Board of County Commissioners of each county for projects located in that county. This use of Forest Restoration</p>

	<p>Funds will be in addition to, and will not reduce the total amount of planned contributions of Denver Water and USFS under the MOU and the Operating Plan. The Forest Restoration Funds may be used on non-USFS lands.</p> <p>d. Following termination of the MOU, Forest Restoration Funds from Grand County's account will be added to the resources available for use in the Learning by Doing Cooperative Effort established in Article III.E.6. Decisions on how best to use the funds will follow the decision process outlined in the Learning by Doing IGA. The use of Forest Restoration Funds from Summit County's account will be determined by agreement between Summit County and Denver Water.</p>
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